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ABSTRACT

Using information gathered through a study funded by the New Zealand Minister of Education, this document examines the history and implementation of the New Zealand government's 1:20 teacher-pupil ratio policy first set in motion in 1985, pupil progress associated with the policy, and related literature about class size. The following papers, each accompanied by a list of references, are included: "Fleshing Out the Bones: The Origins and Development of the 1:20 Teacher-Pupil Ratio Policy in the Junior School" (Cathy Wylie); "Evaluation of the Implementation of the 1:20 Teacher-Pupil Ratio Policy in the Junior School" (Margery Renwick, June Vize, Lynne Smith); "Pupil Progress, Reading Recovery and the 1:20 Teacher-Pupil Ratio Policy in the Junior School" (Geraldine McDonald); "Class Size: A Review of the Literature on Class Size Relating to the Early Years of Schooling" (Valerie N. Podmore). Ten tables are included. (CLA)

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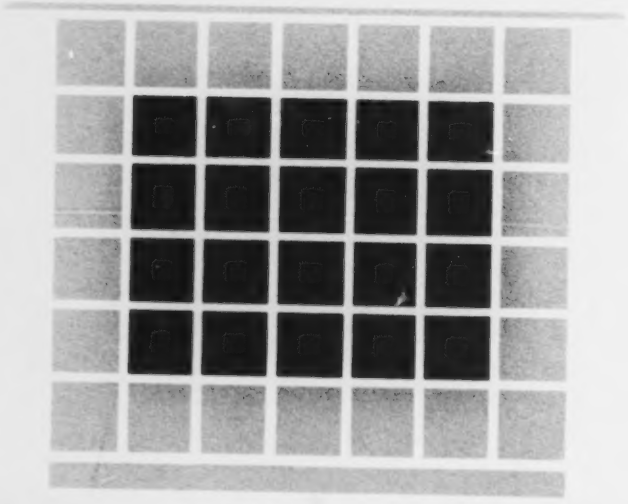

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New Zealand Council for Educational Research

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Geraldine McDonald
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New Zealand Council for Educational Research
Wellington
1989

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INTRODUCTION

Before the last election the Labour Party committed itself to introducing a 1:20 teacher-pupil staffing policy into the Junior School. Following the election, steps were taken to put this policy into effect. It was to be implemented in stages. A first allocation went into schools in September 1985 and a second in early 1986. A further allocation was made in 1987 but in 1988 the policy was halted. However, 150 full-time teachers equivalents were approved for 1989 and this brings to 1010 the number of positions which have now been created.

NZCER was approached by the Minister of Education through his Department '... to look at various aspects of Junior School organisation in the context of the government's policy for improved teacher-pupil ratios'. The request was in line with departmental policy '... to find ways of evaluating policies primarily to find out to what extent they are achieving their intended objectives'.[1]

In September 1985 NZCER received funding to administer and carry out the research over the following three years.

The intended objectives of the 1:20 policy were both immediate and long term. The immediate objectives were administrative. They were to increase staffing levels in the junior classes, to devise a method of allocating staff to schools at each phase of implementation and to develop guidelines for how the policy was to be implemented in schools. The long term objectives were educational. It was hoped that the policy itself and the way in which the staffing was used in schools would provide the conditions for better learning and teaching and improved pupil progress.

In Chapter 1, Cathy Wylie describes the lengthy history and political fortunes of the 1:20 policy. Wylie explains that the allocation of staff to schools was to gradually absorb teacher resources under the Reading Recovery programme and some other discretionary staffing provisions, and how and why the allocation decisions changed with each round. Partly because of time constraints and what was felt to be the more urgent need to outline the

technical aspects of the policy, a restriction on creating new classes in favour of using the staff flexibly was not at first clear in the communication of the policy to schools.

Chapter 2 by Margery Renwick, Lynne Smith and June Vize gives information on the policy in practice. The allocation of staffing to Education Boards in 1985 and 1986, the characteristics of the schools which received staff and the overall reduction in numbers of pupils to staff are recorded. This information is followed by the results from a questionnaire sent to all schools which had received a staffing allocation. The questionnaire sought information about the implementation of the policy within schools. The topics included communication of the policy to schools, how decisions were made to use the staff, whether and how parents and the community were informed, what organisational arrangements were adopted, what particular use was made of the additional staffing, and what teachers saw as the results. The principal findings were that teachers were greatly appreciative of the increased staffing but that there was disappointment that the allocation absorbed some of their discretionary staffing and especially Reading Recovery provision. The requirement that schools should use the staffing flexibly across all classes in the Junior School and that they were to be discouraged from setting up a separate class with a ceiling of twenty children proved to be the most controversial aspect of the policy.

In Chapter 3, Geraldine McDonald asks whether the 1:20 staffing policy is likely to increase the rate of children's progress through promotion out of the junior classes as distinct from raising standards of achievement. She uses results from the Reading Recovery programme to demonstrate that any achievement gains from 1:20 staffing are unlikely, under the present promotion pattern, to increase overall rates of promotion although they may alter the promotion chances of individual children. The chapter argues that policy makers should look at promotion policies which may unwittingly act as a barrier to the outcomes anticipated from any reform.

The 1:20 staffing ratio policy had the effect of lowering the size of classes, teaching groups, or both. There is an extensive literature on the effects of class size. In Chapter 4, Val Podmore reviews recent studies looking particularly at those concerned with young school children. She concludes that links between class size and learning are complex but some positive relationships appear to exist. That young children's on-task behaviour in the classroom and the reduction in teacher stress are positively related to smaller class size have been reasonably well established. Val Podmore's review demonstrates that it is unlikely that '...any single variable such as class size will necessarily be found to be decisive in explaining the effectiveness of teaching and learning in Junior Schools'.[2]

The 1:20 policy was seen by the Department of Education as '...a useful point of entry into a programme of educational research'.[3] Therefore a programme consisting of independent but interlocking research modules was developed. The present report gives the results from two modules and from part of a third.

A start has been made on observing children and a pilot investigation was carried out by Geraldine McDonald, Ann McKinnon, Margaret Mooney, Lesley Allen and the Advisers to Junior Classes each of whom observed a school day in the life of a junior class child. The results of this pilot study will form the basis for a more extensive study. Information from all modules will contribute to answering the all-important question of whether the policy will, in the long term, influence what happens to children in classrooms.

Many people have provided help and advice. Ken Foster deserves special mention for his assistance with more than one part of it and for the ready access which we have had to his experience and expertise. The Advisers to Junior Classes made many contributions. They provided detailed knowledge of Junior School classrooms throughout New Zealand, they interviewed teachers and they observed children. Anne Meade gave considerable help with the questionnaire survey and Santosh Khanna assisted with analysis of part of the results from this. There were two groups associated with the study. One

was an advisory committee for the questionnaire survey of schools. The members were Hans Wagemaker, Ken Foster, Dick Grace, Anne McKinnon, Val Dell, Ruth Mansell, Neil Sutherland, Rachel Mackey, Brian Hennessey, Anne Meade, Cedric Croft, and Val Podmore. The other was an NZCER group consisting of the members of the Families and Early Childhood Programme all of whom had an active role in the study, Geraldine McDonald who also worked on the project, Barbara Craig and Cedric Croft. This group received reports on all the separate parts of the study. Trish Hepburn prepared the manuscript and Peter Ridder was responsible for the production.

Over the three years, the study involved the full- or part-time work of several members of the NZCER staff with contributions from Advisers to Junior Classes and officers of the Department of Education. As this report shows, together they have produced an illuminating and varied study of the 1:20 policy and its implementation. We also believe that the study has achieved its objective of finding useful ways of evaluating this important policy, which from the young child's viewpoint means more teachers, and from the teacher's viewpoint means fewer pupils.

We are grateful that the Minister of Education, has decided to continue funding the study.

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1. Letter from the Director-General of Education, W. L. Renwick to the Chairperson of the NZCER Board, August, 1985.

2. Director-General to Chairperson, NZCER, August 1985.

3. ibid.

CHAPTER 1

FLESHING OUT THE BONES: THE ORIGINS AND DEVELOPMENT OF THE 1:20 TEACHER-PUPIL RATIO POLICY IN THE JUNIOR SCHOOL

Cathy Wylie

One of the major planks in the Labour party's education policy for the 1984 general election was '..to improve staffing to achieve our greatest goal in education - the improvement of class sizes.... In the junior classes of primary education, we will implement, as quickly as possible, a ratio of 1:20 beginning with the full staffing and resources necessary for the nationwide coverage of the Reading Recovery programme.'[1]

Summarized as 'The reduction of class sizes', the improvement in the teacher-pupil ratio was featured in Labour's publicity during the election campaign, which it won.[2]

Why did Labour stress improvement of class size through a precise teacher-pupil ratio? How did this outline translate into actual changes in classrooms? This chapter aims to set this particular policy in the historical context of changing staffing ratios and class sizes in the primary school, and to examine the process by which this global policy was fleshed out into specific decisions on allocation and use. Examination of the development and implementation of the '1:20 policy' provides an interesting case study of prevailing beliefs about the provision of quality education, and of the decisionmaking and communication processes in the New Zealand education system.

The Link Between Class Size and Quality Education

'Small classes' was one of the main issues identified by voters in a poll commissioned by the Labour party to assess electoral concerns before its 1984 campaign.[3] This indicates public acceptance of a link between the quality of

a child's learning and the amount of attention available from his or her teacher. This emphasis on smaller classes contrasts with the then National government's education policy. The Minister of Education, the Hon. M. Wellington, had stated his belief that reduced teacher-pupil ratios did not increase educational achievement.[4] He had emphasized policy goals of economising where possible, and in line with this had taken a targeted approach to educational changes, calling them 'selective qualitative improvements.'[5]

The existing teacher-pupil ratio in the primary schools in 1984 was 1:31, and 1:25 for schools with less than 150 pupils (mainly in country areas). This ratio had been introduced by the National government in 1977. Previous ratio improvements had been 1:40 reduced to 1:35 (announced by a National government in 1969, to begin implementation in 1972, with 1975 as completion date); and a goal of 1:20 in infant classes and sixth and seventh forms, 1:30 in other classes, during the Labour government 1972-1975. The New Zealand Educational Institute had been campaigning vigorously for reduced ratios since the late 1950s, (1:20 in infant classes, 1:30 in the rest of the primary school) and the 1962 Currie Commission on Education[6] had recommended substantial improvements in class sizes. The Currie Commission's reasons for this were:

> *The Commission found complete agreement in all evidence that primary classes are too large and have been so for a long time. Successive governments have recognized this fact in principle. (p.232)*
>
> *Class size has.. a profound effect.. upon the methods used by the teacher and the discipline of the classroom, and may well be included in the conditions of service that make teaching an attractive or unattractive profession. (p.232)*
>
> *(a profound effect on..) the effects of age promotion on classroom methods. (p.237)*

> *Certainly the whole theory of modern primary teaching is based on reducing the number of pupils in a class to a size that a teacher can handle, if not individually, at least in a number of groups. (p.237)*

It recommended (Rec. 6/4) 'That in primary schools planning be undertaken for progressive improvement of the maximum size of classes as follows:

> General classes: first to 40, then to 35.
> Infant classes: to 30.
> Sole-charge schools: to 25 (p.730).

It suggested that the improvement to 35 should be possible by 1977.[7]

It is interesting here that a distinction is made between infant and higher age classes, that small class size is linked with easier discipline and - presumably favoured - teaching methods, and that individual or one-to-one interaction between teacher and pupil is seen as ideal (if unattainable).

Similar thinking lies behind the present 1:20 policy, formulated 22 years later. One major shift, however, at least in the Department of Education's and New Zealand Educational Institute's conception of their respective policies, has been to use teacher-pupil ratios as the basis for overall school staffing schedules and entitlements rather than as a ceiling figure for individual home classrooms. This may be because staffing schedules were the basis for the major drop to 1:35 in 1969. It is probably not unrelated to the fact that the average teacher-pupil ratio looks smaller on staff schedule figures than the percentage of primary classrooms (which includes 'special' classes and all primary levels) above any given ratio.[8] Staffing schedule ratios would therefore provide a slightly less expensive policy than classroom ratios. The difference between the two ratios however, is still unclear - and in some instances, possibly unacceptable - to parents and many teachers, particularly for those educated when 'class' and 'classroom' and 'home classroom' were one and the same thing.[9]

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The National Government announced plans for a 1:35 ratio in 1969 (an election year). Its reasons for not beginning implementation until 1972 were: insufficient number of teachers (there were just enough for the 1:40 schedule), insufficient classrooms, and the transition from 2 to 3 year teacher training which would not be complete until 1972.[10] The New Zealand Educational Institute was disappointed at the delay,[11] and later congratulated the new Labour Minister of Education, the Hon. Phil Amos, when the new 1:35 schedule was in fact fully implemented in early 1974.[12] The Institute then castigated the Labour government[13] for not moving on its 1:20 policy (for the infant classes), and read the government's decision to create 400 new permanent positions under the policy later that year as a result of its own successful pressure.[14]

The National government which replaced Labour in 1975 was less convinced of the worth of smaller classes and reduced teacher-pupil ratios.[15] The New Zealand Educational Institute countered the Minister of Education's use of an Australian research paper to suggest that teachers rather than pupils benefited from reduced class sizes with salient points from 'research findings' and a charge that he had oversimplified the paper concerned.[16] The Minister appears to have listened. The staffing schedule ratio, which had not been legally altered by the Labour Government, was lowered from 1:35 to 1:31 for all primary and intermediate schools with more than 155 in 1977. Other factors no doubt taken into account were the 'naturally' gradually decreasing average teacher-pupil ratio - related to falling primary rolls - and the teacher increases under the 1972-5 Labour government, including the 400 1974 additions whose jobs had not in fact been made permanent before a change in government and policy.

The New Zealand Educational Institute continued to push for its 1:20/1:30 policy under the National Government 1976-84. It used the growing class size literature and meta-analyses (analysis based on large bodies of evidence)[17] to support its case to both the public and politicians. The Labour party policies on reduced teacher-pupil ratios in the 1981 and 1984 elections emerged from discussions with the New Zealand Educational Institute and were confirmed by sampling of public support such as the 1984 issues poll.

The New Zealand Educational Institute also tried to gain staff increases through the 'selective qualitative improvements' approach of the then government. In 1982, the Minister invited the New Zealand Educational Institute to make staffing suggestions in 3 'selected areas of need...'

* Those children for whom the normal classroom constitutes a difficulty

* Multicultural areas of need

* The general area of reading[18]

The New Zealand Educational Institute also participated in a Primary Staffing Working Party set up in 1977, and reconstituted in 1979, which reported in November 1983. The other participants were the Department of Education and the Education Boards Association. This 'tripartite' working party formula has frequently been used in the primary school area, and would be used again in working out the allocation order for the 1:20 policy. The Department of Education, acting under Ministerial direction, carries the decisive weight on these tripartite committees, as can be seen in an introductory paragraph to the Primary Staffing Working party's report.[19]

This report recommended staffing improvements in specific aspects of the primary school (including intermediates): Reading Recovery, teacher-librarians, non-teaching librarians, ancillary staff, and specialist positions in intermediates. The total staff increase recommended was in fact major (3094.85 full-time equivalents).[20] No action had been taken on these recommendations by the time of the 1984 snap election.

The Labour party policy on smaller junior classes/improved teacher-pupil ratio can be seen as the result of persistent lobbying from the New Zealand Educational Institute, the spread of the belief based on reports of research that smaller teaching groups positively affect children's learning, from professional educators such as District Senior Inspectors to parents and

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Education Boards, and a renewed focus on education as unemployment rose and credentials such as School Certificate and University Entrance lost their strength on the job market.[21] Disenchantment with remedial programmes and the drop-out rate from secondary schools helped arguments that the first years of school were the 'formative', crucial years for success at school - an argument doubtlessly aided by the lower pay rates of primary teachers in comparison with the secondary and tertiary sectors.

Public support for an increased teacher-pupil ratio remains high. In the Curriculum Review published July 1986, smaller class size and an improved teacher-pupil ratio headed the list of changes people wanted to see 'by all sectors - parents, teachers, students, community groups and others' (p.20). It was also prominent in responses under the 'fairness' section of the Review, with this comment: 'As in responses to other issues, this was seen by students, teachers and parents as the key to other improvements in learning in New Zealand schools' (p.63).

The New Zealand Educational Institute's and other groups' disappointment when no further positions under the 1:20 policy were created in the 1987 budget was well reported in the media.[22]

Implementation of the 1:20 Policy

Staffing increases under the 1:20 policy began quite quickly. The 1984 budget added 236 Reading Recovery fulltime equivalent positions,[23] to take effect from the beginning of the 1985 school year. The 1985 budget added 200 general positions to start in the third term of 1985, with 300 to start the 1986 school year. However, only 100 positions were added in the 1986 budget, to start the 1987 year - and none in the 1987 budget, despite heavy New Zealand Educational Institute lobbying and the Education Minister's attempts to convince his Cabinet colleagues to add at least another 200 positions.[24] The continuing cost of the new positions was the major stumbling block for a Cabinet convinced that the public deficit must be lowered and government spending restrained. The Treasury, a dominant influence in Government thinking, also continued to argue that there was no evidence that improving the teacher-pupil ratio improved learning.[25]

In its 1984 brief to the new Labour Education Minister, Hon. Russell Marshall, the Department of Education (henceforth referred to as 'the Department') estimated that some 2000 full-time positions, and 1500 part-time positions would be needed to fully implement the 1:20 policy. It noted that nationwide coverage of Reading Recovery would improve the overall ratio, and provide some 380 full-time teacher equivalents; and because the 1:20 ratio had already been reached or was relatively close in the 550 schools with grading rolls of 150 or fewer, on an existing staffing schedule of 1:25, gave its assessment that 'The need to introduce a 1:20 ratio in junior classes is greater in schools with total rolls of 151 or more (existing staff schedule ratio 1:31)'.[26] Both these points were incorporated into the framework to decide the allocation of the 1:20 positions.

Two other comments made by the Department were not, however, taken up by the Minister. These suggested a review of notional roll status, and noted the lack of staffing increases for schools with grading rolls between 151-187 on the current staffing schedules.

Notional roll schools are the 45 schools so designated in 1976 on the basis of 'special needs' (mainly in the area of non-Pakeha school population, low socio-economic status, reading and language difficulties).[27] Their rolls are weighted by 10-20 percent to provide additional staff. The Department's comment was: 'One issue to be considered is whether the extra staffing generated by notional roll status should be reduced or even continued when the 1:20 ratio is introduced into the junior classes.'[28]

In fact, the Minister directed the tripartite allocation committee to give priority to such special needs.[29] Both the New Zealand Educational Institute and the Education Boards Association would have preferred the definition of special needs to be left to each Education Board to decide its own distribution.[30] This reflects their roles as representatives of local constituencies, and some dissatisfaction with any national definition of 'special needs'. The emphasis on the needs of children from cultures other than Pakeha in the notional roll criteria had met with disgruntlement from those board areas (particularly the South Island) which had no schools fitting all criteria.

However, there was very limited time to try to alter the Minister's priority in relation to the first allocation. Cabinet announced the 200 new positions for the third term in May; the final school grading figures were not available until the annual 31 July headcount (which includes an estimate of the next year's intake based on a weighting of a school's current 'new entrants' roll by a quarter).

The allocation was also to be divided between all Boards in relation to their proportion of the total junior school roll. District Senior Inspectors and Board personnel then compiled ranked lists of eligible schools and made recommendations to be sent to the Minister for his approval. The criteria they were to use, as agreed by the allocation committee, were (in priority order):

1. Schools which fit the 13 criteria for notional roll schools and would be able to use a full-time teacher equivalent.

2. Schools where the roll in junior classes is proportionately higher than in middle or senior classes.

3. Schools of Grade 5, or 4, or 3, with a large roll in junior classes.

4. Schools with particular outstanding needs which do not fit the first three criteria.

Each school was to receive only one teacher, so 200 schools benefited from this first allocation. Because of the tight time frame between the Minister's decision on the recommendations made to him and the deadline in the *Education Gazette* for advertisements recruiting staff for the third term, some boards were unable to meet the deadline, or could meet it only without their usual inclusion of the specifications made by Principals.

The priority given to getting teachers into schools has been given as a reason for the use of an existing Regulation, 23(b), which allows an Education Minister to authorize staffing for special needs, rather than drafting a new regulation to give the new staffing schedules permanent legal status.[31] In another section of its Ministerial briefing on policy, the Department expressed its disquiet at the slow pace of the Crown Law Office in dealing with changes to 9 regulations - some of which had been in the drafting stage for 4 years.[32] Perhaps this experience made it reluctant to tackle any further changes to regulations. Nonetheless, in light of the problems for teachers in the 400 1:20 positions brought in by the 1972-1975 Labour government because they were not set out in the Regulations, it is curious that the Department gave no advice to the Minister on the legal implications of the 1:20 policy, though it did note legal aspects in other sections of its briefing. This lack of advice could be seen as supporting the view held in several quarters[33] that the Department preferred a targeted approach to educational improvement rather than a general lowering of the teacher-pupil ratio. As at the end of November 1988, the new staffing schedule remains without permanent legal status. The criteria approved by the Minister for the second allocation of 300 positions at the start of the 1986 school year were, in priority order:

1. Notional roll schools - up to 2 full-time teacher equivalents.

2. Schools meeting all 13 Notional Roll criteria - up to 1 fulltime teacher equivalent.

3. Schools meeting 10-12 of the notional roll criteria - up to 1 fulltime teacher equivalent.

4. Schools with high Junior Class rolls - 2 full-time teacher equivalents for a difference of 6 or more positions between their present staffing and 1:20 entitlement; 1 for those with a 3.5 - 5.9 difference; 0.5 for a difference of 3.4.

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This time the allocation recommendations to the Minister were not decided at Board level, but by the national allocation tripartite committee. As with the first round, they applied only to schools with rolls of 151 or more.

The third allocation (of 100 positions, to begin the 1987 school year) went back to a carve up between boards according to their particular proportion of the total junior school roll. Recommendations to the Minister also went back to the Boards and District Senior Inspectors to make. The criteria this time were:

1. Schools with high junior rolls and continuing roll growth.

2. Schools with high junior rolls.

Why did the criteria change for successive allocations? The priority order in the first allocation was not adhered to by all Boards; some simply did not have any schools which met the top priority. Most boards were able to give every school which met one of the four criteria an additional teacher, including the category of 'other needs'. Auckland, however, exhausted its proportion in the first criteria, with additional teachers going to just over half its schools meeting 10-12 notional roll criteria. The notional roll criteria were in fact used in each Board to categorize the most needy schools. The 45 notional roll schools (all in Auckland and Wellington) received no extra staff in this first allocation. Perhaps that is why they headed the list for the second allocation.

The priority order for the second allocation meant that Auckland received almost three-fifths of the new positions.[34] Wellington received slightly more than its share as measured by proportion of total junior school population, and all the other boards rather or much less. This was one reason why the Education Boards Association and the New Zealand Educational Institute pushed for a return to a proportional allocation in the third round.

The Education Boards Association believed that the much smaller number of positions approved by Cabinet gave them more leverage in this allocation, since otherwise some boards would have received little tangible benefit from the 1:20 policy.[35]

Pragmatic considerations at the school level also played their part in the gradual shift in emphasis from 'special need', pupil characteristics that were deemed to require additional teaching attention to give them the same quality of education as the majority, to school numbers alone. Schools with the greatest gap between current staff numbers on the 1:31 scale and the new 1:20 scale were seen to need a gradual phase-in of additional staff to avoid a heavy stress on accommodation, equipment and school organization, and to match local supplies of available trained applicants. This may explain the fact that more schools fitting the fourth priority of the second allocation received 1:20 staff, than schools fitting the third.

The national supply of teachers was a consideration. One reason for specifying that staff additions be full-time positions was a desire to provide employment in the face of gradually (but not uniformly) falling rolls. Though numbers at teachers colleges had been cut back during the previous government, there were thought to be sufficient to meet a projected addition of 300 a year (which would have the policy fully implemented in 1991) with the increases in teachers college numbers which the new government had also brought in.

The 1:20 policy gave quite a few staff who had been employed on a temporary or guaranteed staffing scheme basis (due to falling roll) 'permanent' status. The inclusion of Reading Recovery coverage needed some deft arrangements, since many of the existing positions were fractional rather than full appointments. District Senior Inspectors could absorb a school's Reading Recovery allocation, where it existed, into a 1:20 addition, thereby freeing that Reading Recovery allocation for another school which might not be receiving a 1:20 teacher at this stage of the 1:20 allocation. Although Reading Recovery was clearly linked with the 1:20 staffing in the original policy statement, the NZCER survey (see Chapter 2) shows a number of schools expected that their 1:20 addition(s) would be on top of their Reading Recovery

allocation, and were somewhat aggrieved to find that it was not. Certainly, Ministerial press statements and comments in the Department's annual report have given a running total of additional positions including Reading Recovery (fulltime equivalents), but have also distinguished them from 1:20 positions.

Communication of the Policy

With hindsight, the Minister would have included in his policy statement[36] the intention to use the improved teacher-pupil ratio within a school to foster more flexibility in the size of teaching groups. While that intention was clear to the Minister, the Department, New Zealand Educational Institute and the Education Boards Association, through their participation in the allocation committee, its communication to schools was uneven, and in some cases only occurred after an appointment had already been made.

Both the New Zealand Educational Institute and the Education Boards Association reported the progress and outcome of the allocation committee to their members. In fact the first public description of the criteria to be used for the initial allocation appears in an New Zealand Educational Institute circular dated 27 May, a day after the Minister's press release announcing the allocation numbers for 1985 and 1986.

Four months later, on 27 September, came the Department's circular with specific details for Principals and board staffing officers on how to work out the new ratio, its relation with Reading Recovery and the implications for future additions (for example, its effect on a school's eligibility for non-teaching Principals). Those technical details for the 1986 allocation came out in a circular dated 20 September. However, the Department had agreed with the Education Boards Association to bring forward to July an annual national meeting of board staffing officers in order to go through the complexities of the new ratio. These two circulars cover only technical aspects of the policy. They do not outline the aim of the policy, and the use to which the additional resource might be put.

The aim and use of the policy was discussed with the allocation committee, and between District Senior Inspectors and the Schools Division of the Department of Education (many of whom are former inspectors). It was also the focus of

a conference of Advisers to Junior Classes in October 1985. The New Zealand Educational Institute published many of its then curriculum officer's reflections and advice given to that conference in the October issue of *NatEd Newsletter.*[37] District Senior Inspectors also gave advice in their regular newsletters to schools (usually sent out several times a term). Seminars were organized in most board areas for Principals (and sometimes their Senior Teacher in the Junior School) of schools receiving a 1:20 position.
The Department felt that the need for inspectors' approval of a school's organization chart would ensure that the policy would be implemented properly. The normal channels for communication between the Head Office of the Department and the boards and schools were relied on to communicate the policy.

The lack of any early initiative on the part of the Head Office of the Department to provide schools directly with an outline of the policy's aims and use, as was done as a matter of course with the mechanics of the allocation of staff, shows up in the variable way in which the policy was enacted in schools. Twenty-eight percent of the 1986 NZCER survey respondents and sixty-seven percent of the 1985-only schools said they had used their staff addition to create an extra class - yet extra classes were definitely ruled out by the guidelines discussed and agreed within the tripartite allocation committee.

The other guidelines are:

* The position could only be used within the junior school (the first three years).

* It was only to be used for teaching, not administrative work.

* Reading Recovery was to be implemented or expanded.

* Flexible groupings according to children's ability and the topic, including individual tuition, should be used in teaching programmes.

With the exception of Reading Recovery, these guidelines are very similar to those outlined for the 1:20 policy of the 1972-75 Labour government.[38]

Within the allocation committee, there appears to have been consensus that the positive effects of an increase in the teacher-pupil ratio would be enhanced - or only occur - if it was used to change teaching methods from a uniform approach to different children and different curriculum items to a more varied repertoire more closely matching size of group with children's needs and the kind of subject.

With one exception, the District Senior Inspectors and the Schools Division of the Department have phrased the guidelines as advice or reminders.[39] Reaction to the District Senior Inspector who did state firmly that no new home classes were to be created was strong. The comparatively low key and non-directive approach to principals is an interesting illustration of the territorial autonomy sought at the school level, and its sensitive treatment by inspectors and the Department's Head Office. This sensitivity is at odds with recent criticisms of overcentralisation in the New Zealand educational system. It also has implications for the implementation as intended of any major national policy such as the 1:20 ratio.

Advice and education about the use of the policy has mainly taken place through the personal contact of District Senior Inspectors, Inspectors and Advisers with principals, teachers, and, through Education Boards and school committees, with parents. As part of the policy, six more Advisers to Junior Classes were appointed in 1985. The 1987 package included two inspectors (one full-time in Auckland, two half-time in Hamilton and Wellington), to work specifically with schools to ensure optimum use of new staffing. Each new position was also allocated one day of in-service training. This has been used for seminars on topics such as flexible grouping, in most, but not all, boards.

The development of the 1:20 policy and its implementation, so far, reveal the processes which shape a particular flesh to the bare bones of the combination of belief, method and aim to change, which constitute any given piece of policy. It reveals something of the ambiguous relationships between school,

board, and Department; and between the interest groups of teachers, their immediate employers, the boards, and the Department. Parents are notable for their absence in the working party. Their presence does not take a well organized form. (Compare the New Zealand Educational Institute's ability to chase long term goals such as increased teacher-pupil ratios.) Instead, it is felt in individual incidents of complaint and comment, and the perception from political polls.

The New Zealand Educational Institute's historically close relationship with the Labour Party emerges, as does the remarkably consistent approach over the last 25 years of each of the two major political parties to the quality and quantity of expenditure in the Junior School.[40]

Where a policy is nationwide and involves the allocation of long sought resources, the difficulties of addressing 'special' needs rather than allocating by proportion of numbers are also revealed in examining the 1:20 decision making process. This has important implications for the development and successful implementation of policies concerned to increase social equity. The 1:20 policy was not overtly geared to that aim, though it could be said that Reading Recovery is probably more needed by children from poor homes or non-Pakeha backgrounds. The gearing of the policy toward redressing social inequality came from the wider goals and emphasis of Labour's education policy, a Minister who wished to pursue those goals - and, ironically, a Department accustomed to a targeted approach to improvements.

The covert aims of the policy would encourage flexible teaching groups, use of teaching expertise for in-school training and support, together with more 'diagnosis' and 'treatment' of individual learning needs. This could have a significant impact on teaching practice and learning styles. That this was also the aim of the 1972-75 1:20 policy points to the pragmatic and systemic obstacles confronting swift implementation of such changes. Amongst them would have to be the assumption that the policy objectives did not have to be clearly spelt out.

Acknowledgements

Material for this paper was gathered by interviews with representatives of the Schools Division, Department of Education Head Office, the New Zealand Educational Institute, the Education Boards Association, members of the Wellington inspectorate and the Minister of Education carried out in February-May 1987; responses to written questions sent in late 1986 to District Senior Inspectors and Boards on their role in the implementation of the policy; DSIs newsletters, circulars, Advisers' notes, and the Department's briefing papers given to the Minister in 1984, with comments on the Labour party's 1984 Election manifesto, and the subsequent updates in 1985 and 1986.

Notes and References

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1. From Prime Minister David Lange's speech announcing the education policy 22 May 1984.

2. For example, 'Why I'm voting Labour -Working People Speak Out' (a joint NZ Labour Party and NZ Federation of Labour pamphlet).

3. Source: Rae Julian, then Director of the Opposition Research Unit.

4. Report of Hon. M. Wellington's speech to the 1982 New Zealand Educational Institute Annual Meeting, *National Education*, June 1982, p.88.

5. Report of Hon. M. Wellington's speech to the 1981 New Zealand Educational Institute Annual Meeting, *National Education*, June 1981, p.92.

6. *Report of the Commission on Education in New Zealand*, 1962, Wellington, Government Print.

7. *National Education*, June 1970, p.199. The Atmore Report in *1930* had recommended a improvement from 1:40 to 1:35 by *1935*! (*National Education*, November 1967, p.452).

8. So, for example, the Minister of Education in 1975, Hon. Phil Amos, told the New Zealand Educational Institute Annual Meeting that the 1972 ratio of 1:31.5 had declined to 1:28.8 by 1975. (*National Education*, July 1975, p.77). However, in 1975, 52.3% of all primary classes had 30 or more children. (*Report of the Department of Education*, 1977, Table 6, p.46).

9. See, for example, the proportion of teachers in this NZCER survey who expected a new classroom to be created. Or a report in the *Dominion*, 5/8/1987, p.3:
'Education groups say... many primary school junior classes have more children in them than the one teacher to 20 children ratio... School Committee Federation President Pat Large aid.. The plan to have one teacher for 20 children in primary school junior classes was not happening. "It is of concern to us as we understand it at the moment there are not the teachers available to implement the true one-to-20 in junior rooms as well as have reasonable class sizes in the seniors. Mrs Large said the one-to-20 ratio did not now mean one teacher to 20 children. There might be 50 to 60

children in a class which might have three teachers. Two teachers would teach most of the class while the third took a group for extra reading or extra maths, she said. There were both senior and junior primary classes with more than 30 children in them. Junior class numbers were a particular concern. "It's not only federation policy but my personal belief that no new entrant should go into a class of more than 20 children, Mrs Large said. ...One Wellington school not yet granted one-to-20 ratio has class levels as high as 38....'

It is interesting that the Department of Education Annual Reports continue the long-standing Table 6 giving the range of class sizes, but do not give teacher-pupil ratios.

10. Report of Hon. A.E. Kinsella's address to New Zealand Educational Institute Annual Meeting, 1969. *National Education*, June 1969, p.200, and Hon. B. Talboys reply to a Parliamentary Question reported in *National Education*, September 1969, p.354.

11. These were the comments in 1970 of the New Zealand Educational Institute National President: 'The Government had adopted a cautious approach to the improvement of class sizes, and seemed to lack any sense of urgency in the matter,' the National President, Mr Dwyer, said in a press statement during the Dunedin meeting last month. 'The present aim to reduce class sizes to 1-to-35 is a valuable one, but I see it as only an interim measure. The Government haven't really got the message yet.' He felt that the improvement programme could have been completed by 1972 rather than phasing it in at that time. Mr Dwyer expressed the view that the eventual aim should be to reduce class sizes to 20 to 25 in number. It would be virtually impossible with the rapid changes in educational practice necessary over the next decade to give proper education to all children if classes were not reduced to about that figure. Discussion, evaluation, and teaching children to think rather than to accumulate factual knowledge was a challenge needing yet smaller classes.'

12. Editorial, *National Education*, April 1974.

13. ibid.

14. Editorial, *National Education*, July 1974.

15. Report of Minister's speech at 1976 PPTA Conference, reported in *National Education*, October 1976, p.178.

16. *National Education*, December 1976, p.195.

17. For example, a backgrounder for teachers as well as the media and politicians receiving National Education appeared in the April 1979 issue (a reprint from the Times Educational Supplement) reporting the results of the Glass & Smith meta-analysis, which had a major impact in the field. It provided educationalists with a powerful case to take to busy policymakers; and was one of the reasons why Russell Marshall, as Labour's Education Spokesperson, went for a decreased teacher-pupil ratio (personal communication). As Val Podmore points out in her review of the class size literature, the relation between decreased class size and improved student learning is complex and to some extent indirect. Fifteen is cited by Department of Education officials as the class size where major gains occur.

(personal communications) The ratio of 1:20 was adopted as New Zealand Educational Institute and Labour party policy because a 1:15 ratio appeared politically impossible for economic reasons. The 'flexible' use of the decreased 1:20 ratio aims at the 1:15 ratio for important curriculum areas (reading, writing, maths are often, but not always, cited) or pupil need.

18. Editorial, *National Education*, October 1982.

19. 'The Primary Staffing Working Party was aware that both the New Zealand Educational Institute and the EBA favour across-the-board improvements in teacher-pupil ratios. The Working Party, however, accepted that the present resources available to the Government would be too small to achieve any significant change to the teacher-pupil ratio. Rather than recommend that these resources be used in this way it agreed that it would place its greatest emphasis upon selective qualitative improvements.' (Para 2.2, p.2).

20. Estimated costs and staff numbers were listed separately for each of the 6 recommendations. No total of the cost of implementing the entire set was given. The total cost estimated comes to $65.39 million; Departmental estimates of the cost of the 1:20 policy came to $49.7 million (*Comments on Labour Party 1984 Education Policy, updated to show the position as at 1 August 1986*, p.47). (Henceforth *Comments*).

21. Satisfaction in the education system was reported as low in an MRL Research group poll widely reported before the 1987 election, e.g. National Business Review, 17/6/1987, p.119. The National party picked up on this (rather unfocussed) thread in its election campaign. The Prime Minister's doubling as Minister for Education since the election is an indication of the seriousness with which public concern (and the opportunity for Opposition capitalizing on that concern) has been taken by the Government.

22. As in the Dominion report quoted in note 9.

23. Reading Recovery provision staffing had been started on an ad hoc basis using Guaranteed Staffing component, notional roll status, the special needs discretion of Regulation 31(d) and teacher relief days from boards' inservice resources. Estimates of the need for Reading Recovery vary, with the programme's designer, Professor Marie Clay citing up to 20%, and the Department citing between 10-20%. The Department's advice to the Minister gave estimates to cover 15%. (*Comments*, pp.49-50). The 236 positions in fact cover just over 9%, compared with the 6% of the 6-year-old cohort who went successfully through the Reading Recovery programme in 1985 (Geraldine McDonald).

24. Personal communication, Minister.

25. Personal communications, New Zealand Educational Institute, Department, Minister.

26. Comments, p.46.

27. The '13 criteria' are included in the NZCER Survey.

28. Comments, p.46.

29. His earlier counterpart in the 1972-75 Labour government, and New Zealand Educational Institute, had also stressed special needs defined in terms of culture and low socio-economic status in the initial allocation of the earlier 1:20 positions. (*National Education*, February 1975, p.2 and July 1975, p.77). In this case, however, some schools had received several teachers at once, and were without the accommodation or organization to use them satisfactorily. Memories of the pragmatic problems associated with the emphasis on special needs may have been active in the allocation decisions, and the limits put on numbers per school, as well as political considerations to show the policy taking effect in as many localities as possible.

30. Personal communications, New Zealand Educational Institute and EBA.

31. Personal communication, Department.

32. Comments, 1984, p.50.

33. Personal communication, New Zealand Educational Institute Department, Minister.

34. Its proportion of the total Junior School roll was 29.5% in 1985.

35. Personal communication, EBA.

36. Personal communication, Minister.

37. Again, there are distinct echoes in the background and suggestions made of the aims and rationale for the earlier 1:20 policy announced in 1975 (*National Education*, February 1975, p.2-3; and July 1975, p.77).

38. See references for note 37.

39. Here is a note in the Schools Division summary of the September 1986 DSIs national meeting - to DSIs and Regional Superintendents - '1:20 Staffing: Head Office continues to receive reports that the positions provided are not being used in ways agreed to by the Department and New Zealand Educational Institute. It seems that there is a large number of schools where these positions are used to establish another separate class rather than to finding better ways to organize to improve the quality of children's learning. The whole thrust of the policy must be towards better learning and teaching, and not administrative convenience.'

40. Labour, at least up to the 1987 Budget, has been prepared to support universal policies as well as targeted, and has taken a more expansive approach than National.

CHAPTER 2

AN EVALUATION OF THE IMPLEMENTATION OF THE 1:20 TEACHER-PUPIL RATIO POLICY IN THE JUNIOR SCHOOL

Margery Renwick, June Vize and Lynne Smith

An excellent policy long overdue. At last priorities are being placed at the right end of the education spectrum... the formative years are so vital. (Principal)

The overall reaction of teachers in the schools which received a 1:20 allocation has been one of appreciation.

However, in addition to recording a policy's success, it is also the task of research to analyse where it might not have gone so well. In this chapter we show, largely through the reports of teachers, how the implementation proceeded in schools, much of it smoothly, but with some areas of difficulty, the reasons for which are explored and explained.

In the previous chapter the 1:20 staffing policy was traced to the point at which the first allocations of staff were made to schools. The study now turns to what happened to the policy then. How was it translated into practice? Who made decisions about the use of the additional staffing? What did teachers see as its outcomes?

Because the request to carry out this study of the 1:20 policy did not come to NZCER until the first group of teachers was about to be placed in schools in September 1985, any study of these schools before and after implementation was precluded.

Information was obtained from the following sources:

1. The Head Office of the Department of Education.

2. The Advisers to Junior Classes, who carried out an exploratory survey of the first schools to receive an allocation of staffing under the 1:20 policy.

3. District Senior Inspectors and Education Boards.

4. Principals, Senior Teachers Junior Classes[1] and a sample of Junior School Teachers in all schools which received an allocation of staffing under the 1:20 policy by 1986.

Allocation of extra staff

Information was first collected from the Department of Education on the bases for the staffing allocations, the distribution of the 1:20 resource to Education Boards and the characteristics of all schools which benefited from the 1:20 policy.

In 1985 two hundred 1:20 positions were established. Each school received one position. Positions were allocated on a pro rata basis to each Education Board, based on the board's percentage of the national primary school roll.

As noted in the previous chapter, the 1986 allocation differed from the 1985 allocation in several ways. Although 308.2 positions (including Reading Recovery positions) were established, only 281 schools received teachers under the 1:20 provision because 47 received more than one. Secondly, schools were allocated 1:20 teaching positions on the basis that they had high Junior School rolls or that they met the 13 criteria set out by the Education Department for Notional Roll Schools (see Appendix B), although schools did not have to meet all criteria. Compared with other boards, the Hamilton Education Board, for example, had fewer schools which met all criteria.

Thirty-two schools received an allocation that was less than one full teacher, 202 schools received one teacher and 47 schools received more than one teacher.

Table 1 shows the allocations of teacher positions to Education Boards in 1985 and 1986.

Table 1

Allocation of Staff to Education Boards

Education Board	1985 N	1985 %	1986 N	1986 %
Auckland	59	30	173.0	56
Hamilton	35	17	40.3	13
Wellington	27	14	50.3	16
Canterbury	25	12	15.5	5
Hawkes Bay	14	7	11.3	4
Wanganui	11	5	10.9	3
Taranaki	7	4	2.0	1
Otago	10	5	2.1	1
Nelson	5	2	1.8	0.5
Southland	7	4	1.0	0.5
	200	100.0	308.2	100.0

Table 2 shows by Education Board the number of schools which received allocations in the three categories: 1985-only schools, 1986-only schools, and both 1985 and 1986 schools. The total number of schools benefiting from the extra staff was 369.

Table 2

1:20 Schools in each Education Board

Education Board	1985 allocation only	Allocations in both 1985 & 1986	1986 allocation only	Total
Auckland	1	58	90	149
Hamilton	19	16	26	61
Wellington	11	16	28	55
Canterbury	15	10	7	32
Hawkes Bay	8	6	6	20
Wanganui	9	2	9	20
Taranaki	7	0	2	9
Otago	8	2	0	10
Nelson	3	2	0	5
Southland	7	0	1	8
	88	112	169	369

The criteria by which schools qualified for the 1:20 staffing in 1985 and 1986 are shown in Table 3. The figures supplied by the Department of Education did not separate out the 1985 criteria for the schools which also received an allocation in 1986.[2] The table shows how the priority criteria for each year worked out in practice.

Table 3

Criteria by which schools qualified for 1:20 staffing in 1985-only and in 1986 allocations

Criteria	1985 N	1985 %	1986 N	1986 %
20% Notional Roll Schools	0	0	19	7
15% " " " " "	0	0	12	4
10% " " " " "	0	0	4	1
High Junior School Roll in relation to rest of school	0	0	100	36
Growing Junior School Roll	37	42	3	1
Other Needs	30	34	4	1
School Meets 13 of Notional Roll Criteria	8	9	82	29
" " " 10-12 of Notional Roll Criteria	0	0	38	14
" " " 7-9 of Notional Roll Criteria	13	15	19	7
	88	100	281	100

Note : See Appendix B for notional roll criteria.

The questionnaire survey

In a preliminary exploratory survey, Advisers to Junior Classes were asked to collect information from the schools which had received the first staffing allocation in 1985. On the basis of this information and following the advice of the advisory committee for the project (see Appendix A), questionnaires were designed to collect further information about:

1. The characteristics of schools which had received extra staffing under the 1:20 policy.

2. The way in which decisions were made about the use of additional staff.

3. How the 1:20 positions were used.

4. The general reaction of teachers to the policy and its implementation.

At the beginning of July 1986, questionnaires were sent to the schools which were given extra staffing in 1986.[3] Because the 1985 schools had already been surveyed informally it was at first intended to send the questionnaire only to the 1986 schools. However, when the study was being planned, the different bases for the allocation of staff at each stage of implementation had not been finalised. It soon became clear that restricting the study to 1986 schools would have meant that some Education Board areas would have been under-represented. Southland, for example, had only one position allocated in that year. Moreover, some of the 1986 schools had already had an earlier allocation in 1985. For these reasons, in October 1986 the questionnaire was sent to the 88 schools which had had an allocation in 1985 but not in 1986. This resulted in a survey of all the 1:20 schools in the first two allocations.

Athough there were three samples of school according to year or years of allocation (1985-only schools, 1985 and 1986 schools, and 1986-only schools), because the two latter samples reported on the basis of the 1986 allocation of staff, for the most part they will be treated as one when the results are presented. They will be distinguished only where the analysis requires it. The 1985 schools, therefore, are 1985-only schools and the 1986 schools are a group in which some have had two successive staffing allocations under the 1:20 policy.

Procedure

There were three separate questionnaires, one for Principals, one for Senior Teachers Junior Classes and one for a randomly selected Junior School Teacher in each school. The questionnaires for the Principals and Senior Teachers Junior Classes were basically the same but for the Principals there was an

additional page of questions about the characteristics of the school. The questionnaire for the Junior School Teacher was shorter than the others and worded slightly differently. It sought general reactions to the policy.

For the survey of the 1986 schools, the rate of return for each group of respondents was 90 percent or over. For the survey of 1985-only schools the returns from both Senior Teachers Junior Classes and Junior School Teachers were just under 70 percent and from the Principals, just under 80 percent. The lower rate of return from the 1985-only schools is almost certainly due to staff changes in the interval between the time the school received the extra staff and the time they received the questionnaire.

The number of questionnaires returned was 990. Principals returned 340, Senior Teachers Junior Classes returned 329 and Junior School Teachers returned 321. Replies were received from 353 schools. In the 1985-only schools there were 3 for whom the Principal did not return the questionnaire but at least one other staff member did, and in the 1986 schools there were 10 Principals who did not return a questionnaire but at least one staff member did. There were 16 schools for which no one filled in a questionnaire. Information about schools, their size, composition and staffing was obtained from a set of questions answered only by Principals. Of the returns received from Principals, 79 were from Principals of schools which received a 1:20 allocation in 1985 only and 261 were from Principals of the 1986 schools, 112 of which also received an allocation in 1985. This provided information on 92 percent of the 369 schools which had received additional staffing under the 1:20 policy at the time of the survey.

The questionnaires contained both forced-choice pre-coded questions and open-ended questions. Open-ended questions common to the three questionnaires were analysed using a one-in-three sample of replies. Every school was represented in the latter analysis but for a third it was the Principal's questionnaire which was analysed, for another third it was the one from the Senior Teacher Junior Classes and for the remainder it was the reply from the Junior School Teacher.

Results

Characteristics of surveyed schools

One of the criteria for the first allocation was that schools were to have more than 150 pupils. The way in which the Department of Education establishes the grade of a school supplied the categories for roll size in Table 4. It can be seen that rather more than two-thirds of the schools had rolls of between 100 and 400 pupils, while just under a third of the schools had rolls of between 300 and 400.

Table 4

Size of rolls in surveyed schools compared with all schools

Roll Size	N	%	National %
Up to 100	0	0	45.5
101 - 308	127	37.3	38.2
309 - 410	108	31.8	10.3
411 - 556	87	25.6	5.4
557 - 898	13	3.8	0.6
Missing Data	5	1.5	0.0
	340	100.0	100.0

Seven of the 1:20 schools surveyed had rolls lower than 150 pupils. It is possible that in these schools the rolls had fallen between the time of staff allocation and the collection of the statistics in 1986.

Table 5 presents the official figures on the varying numbers of teachers and part-teacher allocations to schools. This should be kept in mind when reading the results.

Table 5

Number of Teachers Allocated to Schools, 1985-86

Number of Teachers	Number of Schools
Less than one teacher	14
One teacher	206
Between one and two teachers	19
Two teachers	117
More than two teachers	13
	369

Principals' responses to a question about how many extra staff had been allocated to schools did not quite match the official figures for allocation. For example, in 1986 according to figures from the Department of Education, 47 schools were allocated more than one additional staff member and 8 of these had received a teacher in 1985 also. In our survey of the 1986 allocation, it appeared that fewer Principals reported that they had received more than one teacher or part-teacher position than might have been expected. This discrepancy may have had something to do with the transfer of the Reading Recovery and other staffing entitlements to the 1:20 allocation. For example, one school did not return the questionnaires giving as a reason:

> *We received .5 under the 1:20 scheme but lost .5 from continuous staffing - net result nil. We therefore do not have a 1:20 teacher as such. The questionnaires do not apply.*

Because the 1:20 replaced, in part, existing staffing under other resource provisions, some arrangements were complex. The following is a quotation from a Principal.

> ***To gain our 1.7 extra staff, we lost .65 Reading Recovery and .7 GSC giving a gain in 1985 of 0.35 in total.***

More Teachers, Fewer Pupils

Teacher-pupil ratios

The ratio of 1:20 will eventually replace the existing ratio of 1:31 in large schools and 1:25 in small schools. If the schools in our sample had not been given their extra staff the teacher-pupil ratios in those schools would obviously have been higher. However, care has to be taken in talking of those schools which received staff under the 1:20 policy, not to assume that they have achieved a ratio of one teacher to twenty pupils.

The ratios before the allocation of staffing were calculated from Principals' replies to questions about the size of the junior school roll, the number of junior school teachers and the additional staff allocated under the 1:20 provision.

Table 6 shows the reduction in ratios which resulted as a consequence of the 1:20 staffing.

While only 61 schools out of the 325 which supplied the information achieved a 1:20 ratio in the junior school, the number of schools with ratios greater than 1:31 reduced considerably and in a larger number of schools than previously there were between 21 and 25 pupils for each teacher. As already noted, the additional staffing served to replace ad hoc and discretionary arrangements and, therefore, these reductions refer to staffing entitlements and not, in every case, to the reductions experienced by teachers.

Table 6

Teacher-pupil ratio before and after 1:20 allocation

Teacher-pupil ratio	Schools before allocation	Schools after allocation
Lower than or equal to 1:20	18	79
1: 21-25	65	167
1: 26-30	137	67
1: 31-35	77	11
1: 36 or higher	27	1
Missing Data	16	15
	340	340

Note : Information missing from one school in 1986 allocation

Size of the Junior School

The Junior School is defined as the first three levels: New Entrant or Junior 1 (age 5 years), Junior 2 (age 6 years), and Junior 3/Standard 1 (age 7+ years).

Over 90 percent of the 1:20 schools had Junior School rolls larger than 100. Only 31 percent of New Zealand schools have Junior School rolls as large as this. The number of Junior School teachers in a school ranged from under 3 to more than 10, the most common number being 6. Over half the schools had children entering from Te Kohanga Reo.[5]

Decisionmaking within the surveyed schools

The Minister of Education announced the implementation of the 1:20 policy in June 1985. The President of the New Zealand Educational Institute welcomed the announcement and explained how the additional teachers should be employed.

More Teachers, Fewer Pupils

> *It is important that members appreciate that the ratio is an arithmetical device for establishing a school's staffing entitlement. **It does not establish a maximum class size.***[6] (Emphasis in original)

The Advisers to Junior Classes reported from their informal collection of data from schools which received staff in September 1985, that almost all teachers thought the new staffing ratio would mean classes of twenty children. Respondents in the postal questionnaire were not specifically asked what they had expected, but the following comment sums up feelings expressed throughout the questionnaires:

> *I feel that the 1:20 is perhaps a misnomer and does not accurately describe the intent or the translation of this staffing entitlement. Parents have a different picture in mind - as do teachers - of what it should be. In their minds it has taken quite a change of direction from the original election promise which seemed to imply one teacher, twenty children as the norm in a junior class rather than a flexible arrangement covering a variety of things.*

Traditionally, schools have received extra staff because of roll increases and the extra teacher has been used to siphon off a new class. While the policy was for flexible use of the staffing allocation it seems that '1:20' was firmly fixed in the public consciousness as a class size rather than as a ratio across classes and groups. Our survey highlights the difficulties which these two opposing expectations produced in the implementation of the policy in schools.

In his statement explaining how the 1:20 staffing entitlement was to be used the President of the New Zealand Educational Institute is quoted as saying:

> *It is hoped that the Principal will arrive at these new staffing schedules in consultation with the staff.*[7]

In the questionnaires we asked both the Principals and the Senior Teachers Junior Classes, and the Junior School Teachers about the process of consultation when decisions were made about the use of the extra staff.

In most schools the Principal consulted with other staff. The other staff were equally likely to be the Senior Teachers Junior Classes; the Senior Teachers Junior Classes and other senior staff; or the Senior Teachers Junior Classes and other Junior School staff. Only in a minority of cases was the decision said to be have been made by the Principal alone. Senior Teachers Junior Classes were more likely than Principals to think this had been the case. In a few schools the decision was reported as a joint decision by the total staff. Principals were more than twice as likely as Senior Teachers Junior Classes to believe this to be the case.

Approximately half of the Junior School Teachers surveyed reported that they had not been consulted on the use of the 1:20 staff. There was a slight difference between 1986 schools and 1985-only schools. The latter were less likely to think the Principal made the decision alone and more likely to think it was a decision of the total staff.

Some comments by Junior School staff and Senior Teachers Junior Classes follow:

> *Discussions took place June 1986 on use of 1:20 staff, but final decision made by Principal with Senior Teacher Junior Classes in agreement.*

> *I believe the school inspector advised the Principal. I was a newly appointed Senior Teacher Junior Classes in February.*

Some teachers said that there was no point in consultation or discussion because, for example:

> *Compulsory component of Reading Recovery gave little to discuss.*

> *The Principal had definite guidelines from the Minister through the Director-General and District Senior Inspector of Schools.*

More Teachers, Fewer Pupils

In a handful of instances the Senior Teacher Junior Classes and other staff were given responsibility to make the decisions which were then confirmed by the Principal. Another five said the decision was influenced by school needs and particularly GSC commitments. Two comments indicated instances in which the 1:20 teacher had been consulted.

Parental involvement in making decisions about the 1:20 staffing

One section of the questionnaire was designed to find out whether, and, if so, in what ways, parents had been involved in deciding how the additional staff might be used. Nearly all schools (90 percent) stated that parents had had no influence as to how the extra staff were used.

Reasons for not consulting parents included the opinion that parents should not be involved in decisions affecting the 'professional teaching areas' of the school. Other reasons for not consulting parents were reported as directives from the Department as to the use of the 1:20 rendering consultation unnecessary and that there was thought to be lack of interest in such matters on the part of the parents. A matter requiring decisions about the internal management of learning and teaching was not considered to be a matter for parents.

Many schools did, however, communicate the aims of the policy to parents. The President of the New Zealand Educational Institute had advised:

> *Principals will have to be very certain they communicate to their communities the way 1:20 will work.*[8]

Both Principals and Senior Teachers Junior Classes were asked whether parents had had the new policy explained to them.

While approximately three-quarters of those who answered the questionnaire reported that parents had been informed, more Principals than Senior Teachers Junior Classes believed that this had happened. Principals and Senior Teachers Junior Classes were then asked what methods had been used in the schools to inform parents about the new policy.

The most usual methods of communication were by individual staff in response to parent enquiry[9] or a meeting arranged for another purpose. In about 4 percent of instances schools arranged a special meeting. In some schools, parents were informed by newsletter. Parent Teacher Associations and School Committees were also mentioned as having been informed.

The majority of those who did not explain the policy to parents gave no reason. The most common reason offered among the rest was the difficulty experienced in explaining the policy. This is illustrated by one who replied,

> *It was hard enough selling the proposals to teachers without having to explain the situation to parents. Now teachers are at ease with the system, I would be better able to convince parents of benefits.*

Outside influences on the use of the extra staffing

In order to establish whether persons outside the staff of the school influenced the way extra staff were used, we asked the question, 'Would you please indicate which, if any, of the following, influenced how the extra staff were used:

1. The advice of the District Senior Inspector of Schools.

2. Advice of the Adviser to Junior Classes.

3. Education Department circulars/directives.

4. NZEI publicity?'

Members of the project's advisory committee did not, at first, want this question asked because they were confident schools would make decisions on the basis of children's needs. They recognised the autonomy of Principals in deciding how to run their schools in line with nationally agreed curricula and syllabuses and that the question might be seen to challenge this autonomy.

However, both the New Zealand Educational Institute and District Senior Inspectors of Schools had offered advice and it was important to establish whether this, or any other guidelines from outside the school, had been in any way influential.

Both Principals and Senior Teachers Junior Classes were asked to respond to this question. Their responses were largely in agreement. When the schools which received an allocation in 1985 only were asked to indicate which, if any, of the four sources influenced how the extra staff were used, 41 percent of Principals and Senior Teachers Junior Classes indicated that they had not been influenced by any of them. For those who felt that they had been, the most frequently mentioned sources were circulars from the Head Office of the Department of Education and from District Senior Inspectors of Schools. About a fifth of those who responded mentioned publicity from the New Zealand Educational Institute and about a tenth mentioned Advisers to Junior Classes.

During the third term of 1985 special efforts were made, especially by District Senior Inspectors, to communicate the aims of the policy. Through newletters or meetings with 1:20 schools District Senior Inspectors encouraged them to use the extra staff flexibly. One District Senior Inspector was careful to state that the final decision remained with the Principal; another used an indirect approach, merely pointing out the requirement that staffing schedules should be approved. Although this advice was couched in terms of 'suggestions for use',[10] nevertheless some Principals and Senior Teachers Junior Classes interpreted this as being told what to do. The following quotations sum up how some Principals reacted.

> *I dislike intensely being told how one should use these people - the needs of the school should dictate their use, not the whims of Departmental officers.*

> *Any school which has waited so long for a staffing increment needs little guidance as to how best this can be used.*

Other comments expressed the view that staff know best what 'their' children need, and that whatever decisions were made on the use of the 1:20 teacher, even if these were in agreement with Departmental policy, had been made because of 'the needs of the children'. The result was that in 1985, where extra classrooms were available because of falling rolls, the creation of new classes was common.

However, amongst the Principals of schools which received extra staff in 1986, there was a much greater acknowledgement of advice on the use of the 1:20. Communication of the aims of the policy was uneven, but in the 1986 allocation there was a marked drop in the number of new classes created.

The New Zealand Educational Institute, through the statement by the President in the *NatEd Newsletter* (19 June, 1985) and another by the Curriculum Officer (*NatEd Newsletter* 6 November 1985), had provided more explicit suggestions for use of the extra staff than that contained in Departmental directives. It is perhaps surprising, therefore, that the voice of the teachers' own union was not acknowledged as being more influential. The fact that advice from Advisers to Junior Classes was not high on the list of sources was explained by the Advisers as due to the fact that staff tend not to go to Advisers if they have already had a directive through the District Senior Inspector of Schools. The influence of advisers is probably greater when it comes to classroom issues. This point is worth noting because the Advisers had been prepared for the policy implementation.

Several comments were to the effect that the decision had been determined according to the needs of children in conjunction with the experience of staff.

> *Influenced by the needs of the Junior School as we saw these needs, and I believe we know these as well as any outsider.*

> *School decision based on the expertise of personnel involved.*
> *Main considerations: greatest advantage to most pupils; best way of reducing teacher stress.*

More Teachers, Fewer Pupils

Some comments in the questionnaire returns were statements in support of the official directions and guidelines, often indicating that these were in line with the Principal's or Senior Teacher Junior Classes' own ideas.

Some objected to what appeared to Principals or Senior Teachers Junior Classes as forced options, for example:

> *Directives of school inspectors were very heavy to see that rules for granting 1:20 were adhered to. There was little room for manoeuvre.*

> *The Inspectors were determined that we get it right - although different inspectors had different intepretations!*

There were variations according to whether the school had received any circulars or directives. The 1986 schools were more likely to report having received advice. In 1986, after the survey had been carried out, the Department appointed school inspectors in Auckland, Hamilton and Wellington to provide advice and support to schools implementing the policy. This should influence the use of future allocations of staff. There are some important things to note in the information about who provided advice. They show the degree of importance that teachers give to advice from different sources as well as their (varied) reactions to this advice.

School organisation

The organization of New Zealand junior schools and classrooms is complex and they are organized in a wide range of different ways. Factors influencing organization are:

* The individual admission of children to school.
* The build-up of roll numbers as the year progresses.
* Roll numbers in the Junior School.
* Numbers in an age group.
* Pupil characteristics including ethnic groups.
* Design of school : single cell or variable space classrooms.

* Teaching style and philosophy of staff.

Before trying to establish what changes had occurred within Junior Schools as a result of the new policy we asked Principals and Senior Teachers Junior Classes to indicate which of a set of seven options best described the form of organisation in their Junior School at the time they were surveyed.

The categories for this question were not sufficiently distinct and many respondents ticked more than one type of organisation. There was also a large 'other' category which has been included in table 7 but omitted from the ranking. Inspection of the 'other' replies suggested that most of the double categorisations tended to be elaborations of the already listed forms.

Table 7

Types of organisation of the junior classes in surveyed schools

Organisation	1985-only Principals (79)	1985-only STJCs (69)	1985-only Total	1985-only Rank	1986 Principals (340)	1986 STJCs (329)	1986 Total	1986 Rank
New entrants leading to single cell classroom	31	27	58	1	82	77	159	1
New entrant and J1 leading into single cell classroom	14	13	27	2	42	56	98	3
Single cell classes plus cross groupings and co-operative teaching	8	12	20	3	51	48	99	2
New entrant room leading into open plan/variable space	11	9	20	3	39	31	70	4
New entrant room leading into composite J1/2/3 classes	14	5	19	5	34	25	59	5
Family vertical groupings throughout the Junior School	4	4	8	6	20	21	41	6
Family vertical groupings throughout the school which includes Junior School pupils	0	1	1	7	6	2	8	7
Other	11	17	28	-	28	44	92	-

Note: Replies were received from 79 Principals and 69 STJCs in the 1985-only schools and 261 Principals and 260 STJCs in 1986.

The main point of this table is that in both the 1985-only and 1986 replies (Principals and STJCs combined) the rank order for the seven types of organisation was virtually the same. If the first 3 categories (single cell

organisation) are combined and compared with all other forms of organisation except 'other', the 'single cell' replies account for about two-thirds of all replies in the samples from each year.

Of all who answered this question 461 reported at least some use of single cell classrooms with a home room teacher. However, some form of cross-grouping family organisation and co-operative teaching were reported in open plan, as well as in single cell and in composite classes.

The way schools and teachers were asked to use the 1:20 staffing entitlement presupposes certain school and classroom management styles. It assumes that teachers work co-operatively as a team, have a collegial approach in teaching, and that programmes are child-centred. Only about 13 percent of the replies regarding Junior School organisation reported an open plan. This, however, is a slightly higher percentage than the number of schools reported by Cameron and Robinson in a national study in 1984 and may be due to the fact that the 1:20 policy was targeted first at the bigger schools which are more likely than small schools to be organised in this way.[11] Many Principals and Senior Teachers Junior Classes commented on their Junior School organization, and these comments are illuminating in what they reveal of the reasons for, and perceptions relating to, different forms of organisation. Moreover, although they describe the 1:20 schools they also represent forms of organisation common to all New Zealand Junior Schools.

Examples of comments:

> **New Entrant/J1 reception leading into single cell classrooms**
> *With approximately 100 New Entrants per year we fill one classroom before opening a second New Entrants room. Makes for less movement in terms 1 and 2.*
>
> *Children are able to settle quickly - become used to routines - little or no movement from one room to another.*

More Teachers, Fewer Pupils

Single cell classrooms plus cross groupings/co-operative teaching

Due to the movement of children from other schools and older Polynesian children who have had little or no schooling before 6 years being admitted to the New Zealand schools, these children are kept in age groups but cross-grouped for reading and maths.

New Entrant reception room leading into open plan, variable space teaching

Open variable space school, where after reception year one, pupils are shared by four teachers who each have a share of Junior 2 - Standard 1, Standard 2 children (130+ shared by 4 teachers).

New Entrant reception leading into composite Junior 1, 2, 3 classes

Composite classes are created because of roll numbers and not by choice.

New Entrant room leading into two Junior classrooms.

Two Junior 1/Junior 2, one Junior 1, Junior 2, Junior 3, two Standard 1 with some help from two 1:20 teachers.

Classes continually growing in very large primary school0.
Within open plan, classes are composite Junior 1 and 2. Senior Teacher Junior Classes is released to effect cross-class groupings and supervision of the area. Two bilingual classes exist also within the structure.

Family/vertical groupings throughout Junior School or whole school

Organised on a whanau system.

Two syndicates. Senior Teacher Junior Classes syndicate leader for four New Entrant/Junior 1, Junior 2 classes. (No New Entrant reception). Another teacher is syndicate leader of four Standard 1/Standard 2 classes.

When the upgrading of the school building is completed later this year, we will probably have a three teacher flexible teaching area for our New Entrant - Junior 2 children.

We have been considering having a New Entrant reception room leading to other rooms as we find we have a wide range of maturity and ability levels in our five-year-olds just now.

Organisation dependent on roll numbers and staffing

Adjustments to classes are made during the year as the New Entrant numbers build up.

We have had New Entrant, Junior 1 and Junior 2 in an open plan class and also composite Junior 1 and Junior 2 and Junior 3 classes and the organisation changes from year to year depending on the needs of the children and staffing.

Original organisation one Junior 2/Standard 1 and straight Standard 1 class but expected enrolment in the Junior School has led to a reorganization in July.

School roll has increased and accommodation is at premium. Board architects recognize building implications involved. They are considerable.

The 1986 organisation replaced the 1985 Organisation

Composite Junior 1, 2, 3, classes had been tried in 1985, but staff did not like them.

Identifying the 1:20 teacher

Before asking questions about the '1:20 teacher' it was important to establish whether such a person could be identified. During meetings of the advisory committee the question was raised of whether the 1:20 staffing would be perceived by schools merely as a staffing entitlement applying across the first three years of schooling or whether it would be perceived as a person.

For example, if teachers worked co-operatively or where another class was created and the teacher was not assigned a role which was different from that of other teachers, the '1:20 teacher' might not be easily identified. Therefore the question was asked: 'Are the extra staff appointed under the 1:20 staffing entitlement working in such a way that they are easily identified as the 1:20 teacher/s?'

In just over half of the schools surveyed Principals and Senior Teachers Junior Classes said it was not possible to easily identify the 1:20 teacher; the staff worked as whole; they did not 'label' teachers in this way. Where Principals or Senior Teachers Junior Classes had said the 1:20 teacher usually worked with individuals or small groups the 1:20 teacher was thought to be more 'easily identifiable' than when they were deployed in other ways.

The changes made as a result of the 1:20 allocation

Following is a statement of the changes that were envisaged by the tripartite committee.

> *Certain principles must be realised through the 1:20 ratio. These include:*
>
> * *time for 1-to-1 tuition where necessary, that is inclusive of Reading Recovery;*
> * *time for small group teaching;*
> * *time for teaching larger groups,*
>
> *To achieve these principles, the groups for which each teacher is responsible must alter from time to time during any day. These requirements must be met in the best interests of the children and must be flexible.*[12]

Table 8 shows what Principals reported as changes made as a consequence of the 1:20 staffing. Not all Principals answered this question and data are missing for 11 of the 88 1985-only schools, 10 of the 112 1985 and 1986 schools, and 17 of the 169 1986-only schools.

Table 8

Changes made as a result of the 1:20 allocation

Organisational Change	Principals (N=77)	% of responses	Principals (N=102)	% of responses	Principals (N=152)	% of responses
Extra class created	52	67.5	29	28.4	35	23.0
Extra teacher paired in single cell	6	7.8	19	18.6	20	13.2
Extra teacher works as part of open plan	12	15.6	20	19.6	32	21.1
Extra teacher works mostly with small groups/individuals	19	24.7	62	60.8	77	50.1
Release class teacher for individual/small group work	16	20.8	33	32.4	44	28.9
Works in conjunction with other stff	12	15.6	37	36.3	49	32.2
STJC released or floats	23	29.9	38	37.3	33	21.7
Other	10	13.0	16	15.7	20	13.2
		100.0		100.0		100.0

Note: Categories are not mutually exclusive

Where schools created an extra class it is most likely that they followed the organisational pattern already in existence. For example, if they had a large number of six-year-olds and classes were organised by age, then they created an extra class for six-year-olds.

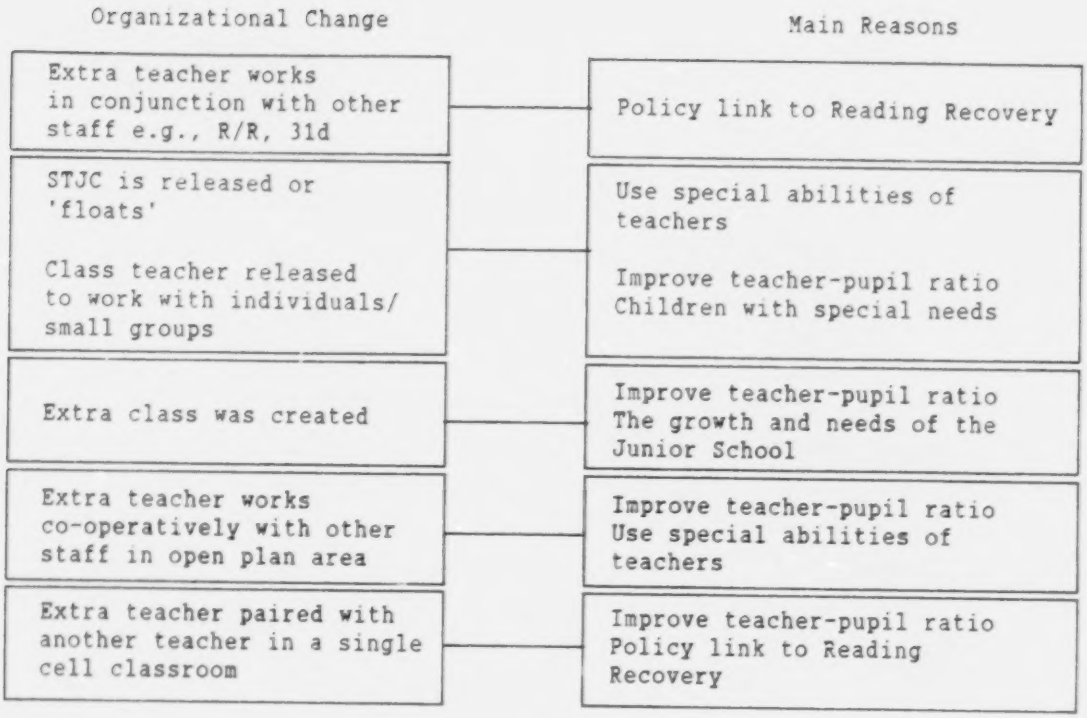
The most important finding is that although 67.5 percent of the 1985-only schools created an extra class a percentage which probably replicates the proportion of schools organised in single cells, this percentage had dropped to 28.4 percent of the schools which had had an allocation in both 1985 and 1986 and was 23.0 percent for the 1986-only schools. It can be recalled that some 112 out of the 281 schools which received extra staff in 1986, had

already been given an additional position in 1985 and that 47 schools which received an allocation in 1986 were given more than one. While the reduction in the creation of classes in the schools which had two successive allocations might possibly have been due to a lack of space in which to establish a new class the even lower percentage of new classes in the 1986-only schools suggests that the drop has more to do with receipt of various departmental messages regarding the use of the resource and also with the establishment of Reading Recovery provisions within the allocation.

There would appear to have been differences in the speed with which messages from the Head Office of the Department of Education reached the Boards and, through them, reached the schools. The Wellington District Senior Inspector and his staff for example, have the advantage of their geographical position to get ready information on policy directions. Auckland is the largest Education Board and, for that reason, special efforts may have been made to see that there was full understanding of the policy there. A further factor is the size of a Board's resources and its own capacity to spread policy information throughout the area for which it has responsibility. It was noted earlier that in Auckland, Wellington and Hamilton, inspectors were appointed with special responsibility for the 1:20 policy. In addition, over the implementation period, there were staff changes within the inspectorate. In other words uneven implementation is not solely a matter of the ability and performance of those in charge of the exercise but involves also the way in which the different parts of the educational system are organised and the resources available for their administration.

Reasons for organisational change

The reasons which respondents gave for the organisational changes they had made are set out below.


Organizational Change
Main Reasons
Extra teacher works in conjunction with other staff e.g., R/R, 31d
Policy link to Reading Recovery
STJC is released or 'floats'
Class teacher released to work with individuals/ small groups
Use special abilities of teachers
Improve teacher-pupil ratio
Children with special needs
Extra class was created
Improve teacher-pupil ratio
The growth and needs of the Junior School
Extra teacher works co-operatively with other staff in open plan area
Improve teacher-pupil ratio
Use special abilities of teachers
Extra teacher paired with another teacher in a single cell classroom
Improve teacher-pupil ratio
Policy link to Reading Recovery

In both allocations the policy was perceived as addressing the same problem - reducing the teacher-pupil ratio. In 1986, a greater proportion of schools reported that the extra staff concentrated on children with 'special needs' (defined as 'disadvantaged' as distinct from 'disabled'). This also reflects the change in the criteria used to allocate 1:20 staff. In 1986 the criteria identified schools which had a large concentration of special needs children.

Organisational options considered and discarded

Principals and Senior Teachers Junior Classes were asked, 'Before the decision/s was made to use the extra staff as you have indicated, were other options discussed and rejected. If "yes" what were the other options and why were they discarded?'

About three quarters of the Principals and Senior Teachers Junior Classes said that they had considered using extra staff in other ways but rejected the options. The most common 'other option' was to create a single cell class. The next most common was a teacher 'floating' for group work. Regardless of

what the option was that was considered, the two most likely reasons for it being discarded were either because it was decided that such an option did not make the most effective and efficient use of the teacher, or, because of Departmental directives and the requirement to provide Reading Recovery.

Aspects of class programmes most helped by the new policy

Principals and Senior Teachers Junior Classes were asked two questions to ascertain which aspects of the Junior School programme had most benefited from the new policy. In the first they were asked to indicate which of a series of eleven aspects of teaching had been helped and in the second, which three they considered to be most important. The following are the eleven aspects of teaching ranked in order of priority according to the responses of Principals and Senior Teachers of Junior Classes.

* Small group teaching
* Individual teaching
* Earlier identification of children's learning difficulties
* Staff working co-operatively as a team
* More children developing independence in learning
* Acceleration of able children
* More contact between pupils
* More varied Junior School curriculum
* Emphasis on multicultural aspects of curriculum
* Ease of Junior School mainstreaming
* Attention to children from Te Kohanga Reo

When asked to indicate in answer to an open-ended question about which aspects of the classroom programme they thought had been most helped, Principals and Senior Teachers Junior Classes in both 1985-only schools and 1986 schools confirmed the above order of priority by nominating:

* Small group teaching
* Individual teaching
* Ability to identify children's learning difficulties earlier.

Over 75 percent of Principals and Senior Teachers Junior Classes felt that the first three aspects of the class programme had benefited from the extra staffing. Small group and individual teaching appears to be taking place within single cell classrooms just as much as in open plan or other types of organisation. A majority of these same respondents also believed that the policy had helped staff to work co-operatively as a team. Therefore, regardless of the particular use made of the 1:20 staff, including the creation of new classes, the outcomes reported for schools were very similar and did not differ substantially between 1985-only and 1986 schools.

All the categories were ranked amongst the top three by at least one person. Only four categories were not mentioned in the first rank by any teacher. These were: attention to children from Kohanga Reo; ease of Junior School mainstreaming; acceleration of able children; and more contact between pupils.

When the Junior School teachers were asked which aspects of the class programme had been most helped by the extra staff, their list, in order of frequency, differed from that of the Principals and Senior Teachers Junior Classes. Their list is about teaching rather than about organisation.

* More children developing independence in learning.
* Acceleration of able children.
* More contact between pupils.
* More varied Junior School curriculum.
* Emphasis on multi-cultural aspects of curriculum.
* Ease of Junior School mainstreaming.
* Attention to children from Kohanga Reo.

Some quotations follow from the responses given by all three groups of teacher:

Small group teaching

This seems to be the most economic way of teaching reading and language and has excellent results.

More Teachers, Fewer Pupils

Fourteen ethnic groups are present in this school. Many came because of the need for English as a Second Language - help can now be given effectively.

Children with poor concentration showed improved acceleration in small group situations.

Small class sizes have meant that teaching groups are correspondingly smaller.

Benefits all concerned, that is, children, class from which group withdrawn; class teacher and 1:20 teacher.

Small groups are the next best thing to individual teaching.

With a small group you can give more individual attention.

Special emphasis on oral language development - 4 hours Reading and Maths.

Children have more opportunities to interact with teachers and other children.

Every teacher is given the opportunity to work with a small group. This may be to give extra help or to accelerate pupils.

For Reading and Maths this enables more careful monitoring.
More small group teaching has been done because it seems the most effective use of the time available. We do consider that 1:1 help is the best.

Individual teaching

This gets pupils away to a good start and they feel treated as an individual not one of a mass.

We have many children who have special needs that are best catered for with individual teaching.

This is where it all begins and ends.

Individual pupil programmes greatly increase the pupils' sense of fulfilment through achievement and better self-image.

The improvement of individual teaching. Good quality teaching is the biggest help in getting children started successfully.

Allows children to return to class with the ability to fit in a group situation.

Earlier identification of children's learning difficulties

Early identification leads to earlier development of remedial programmes before cycle of frustration and failure is established.

More liberal staffing in Junior Department with large class number allows teachers with appropriate expertise (or those given opportunities to improve their expertise) to be given time to monitor individual children's progress and subsequently, suited to their needs, plan programmes.

Diagnostic survey for all 6-year-olds. Senior Teacher Junior Classes has time to consult and help Junior teachers to identify most learning difficulties.

A Special Needs Committee has been set up bringing children with special needs to the notice of others.

Staff working co-operatively as a team

Staff are able to see more clearly the collective and similar needs in classes.

More Teachers, Fewer Pupils

I don't think this is necessarily as a result of 1:20 policy. A strong leader or leaders will have this in place.

In a school with many needy children it is imperative that the staff adopt a team approach. 1:20 has made this more easily attainable.

Small numbers have improved morale generally.

More efficient shared planning has generated enthusiasm and interest in all areas.

Shared monitoring of children - team decisions as to needs and placing of 1:20s.

More children developing independence in learning

Children developing independence in learning is what learning and teaching is all about. It is difficult to put these categories in order of importance as they are inter-related.

Children are able to be slotted into the classroom programme as independent readers and make way for others needing attention.

This is a major thrust in Reading Recovery and allied techniques.

Learning Centres have been introduced. Children need to know how to work independently.

Acceleration of able pupils

The needs of this group are often neglected because they can cope.

Now there is a chance to extend them; more is needed here.

These pupils deserve an amount of time equal to retarded pupils.

Varied junior school curriculum

A new teacher has enabled more curriculum areas to be covered and form a new perspective - especially when all 6 classes work together.

Teachers given chance to teach specialised subjects for a small amount of time at least.

Multicultural Needs

Could be of greater value if schools allowed more flexibility in the use of the teacher.

We have a 65 percent non-European roll. Many English as a Second Language pupils at phase 1, 2 and 3 levels of English language acquisition.

Teaching Maori language when teachers are non-speaking Maori.

We have a high proportion of Samoan and Pacific Island children who have little and broken experience and lack many oral concepts when they enter school.

Te Kohanga Reo

Would need to be a fluent speaker of Maori.

This is a great asset in a multi-cultural school.

We are moving into immersion in Maori in our bilingual school.

More Teachers, Fewer Pupils

Targeted children

We were interested to find out whether the extra assistance provided by the new policy was targeted either to work with 'accelerate pupils' or children 'judged to be below the normal level of achievement' or mostly for work with 'mixed ability and/or interest groups'. Responses showed that where extra staff work mostly with individuals and small groups, they are most likely to work with children judged to be below normal levels of achievement.

A typical comment follows:

> *There is a very large group of children below the normal level of achievement who are being catered for in many varied and interesting ways.*

Other comments indicated that extra staff worked in a variety of ways, making such a classification difficult, for example:

> *Extension language activities (accelerate pupils); reading support (children below normal levels of achievement); music and physical education (mixed ability and interest groups).*

Yet other comments referred to the fact that the groups the extra staff worked with depended on diagnosis and evaluation, so the use made of them changed from time to time.

Finally, a group of those Principals and Senior Teachers Junior Classes who said their extra staff usually worked with children judged to be below the normal levels of achievement said that in targeting help in this way, other pupils are better catered for in the class and so all children gain.

Teacher reaction to the policy

Principals, Senior Teachers Junior Classes and Junior School Teachers were asked about the gains and disadvantages which they saw for children and teachers in the new staffing policy. Nearly all those surveyed in both 1985 and 1986, listed gains to both children and teachers.

Gains to children

Once again the most frequently cited gain in both 1985 and 1986 was 'improved teacher-pupil ratios; smaller classes and groups'. But other gains noted in order of frequency were:

* Improved staff supervision, more effective skills and programmes.
* Identification and attention to special needs.
* Better pupil progress.
* Improved class and school climate.

Gains to teachers

The new staffing ratio was perceived as reducing stress and increasing job satisfaction. One Principal commented:

> *The policy has lessened the stress and strain on teachers and overcome frustration brought about by trying to achieve objectives without adequate resources.*

In a similar vein a Senior Teacher Junior Classes wrote that teaching was now:

> *Much less stressful. Teachers feel that they are teaching and not just minding children.*

> *The reduction in the teacher-pupil ratio has allowed greater attention to all children.*

These last factors were highlighted also as a gain for Junior School Teachers. The comments made show that teachers like to be able to feel that they have sufficient time to respond to the needs of all children in their class. They also believe that keeping the children in their home classroom avoids the disadvantages of labelling children and thus risking instability in these

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concerns of each group reflect both their differing roles within the school and their differing involvement with the day-to-day operation of the 1:20 policy.

One should not get the impression that teachers are unappreciative of programmes such as Reading Recovery. Although many said that they had not expected the time allocation for Reading Recovery to be part of the 1:20 package, they were also aware that they, as classroom teachers, could not afford the time necessary for each individual under this type of programme, no matter how few children they had in their class. But again some teachers were concerned that only a handful of children, those on the Reading Recovery programme, were benefiting from the reduction in the teacher-pupil ratio, especially when they had expected all children to benefit from lower class numbers. Their feelings are summed up in the following quotation.

> *If the 1:20 teacher had been allowed to have a class more children would have benefited because numbers in junior classes could have been lower throughout. The majority of children have been relatively disadvantaged through being in very large classes; 34-35 average and 30 in the New Entrants class. Only the lucky few have gained.*

Comment on the policy

In the final section of the questionnaire all respondents were invited to make additional comments about the 1:20 policy and the way in which it had been implemented.

Once again there is a difference between the 1985-only allocation respondents who were more inclined to give unqualified approval than those respondents for the 1986 allocation, perhaps indicating that more problems were experienced with the more flexible use of the 1:20 staff in the later allocation and/or that the 1985 group were pleased because they had created the additional classes.

More Teachers, Fewer Pupils

Comments of Principals

A space was left for Principals who wished to add a general comment. Forty-three did so. These comments tended to fall into one of three categories: comments on administration of the new policy in relation to other staffing entitlements; comments about school organization; appreciative comments.

Administration : link with other staffing entitlements

A complaint voiced here, the recurring response elsewhere in the survey, was frustration that the 1:20 teacher was linked with Reading Recovery and the 31d allocation.[13]

> *Lost 0.5 Reading Recovery and 0.1 relief time; allocated one teacher, but in actual fact we are only 0.4 better off than before.*

> *Reading Recovery allowance to come from within the one teacher allocated, but stipulated by Board that Reading Recovery must be taken from the 1:20 teacher. This leaves 0.5 for general teaching purposes.*

Other Principals commented on changes consequent upon the policy, in the employment status of teachers, for example, from relief teaching status to permanent positions; at least one teacher took a long term relieving appointment in preference to the 1:20 position;

> *The roll was closed in August 1984, at which point staffing allocation for 1985 indicated a roll of 560. One of the two 1:20 appointments for 1986 is therefore doing long term relieving. The fact that 1:20 positions will be advertised as permanent positions is a good move.*

School organisation

Principals' comments about organisation tended to be either about the large size of a school junior department in a school or the difficulty of describing Junior School staffing when schools are organised vertically. Some typical comments were:

> *Two thirds of the school are Junior 1-3.*
>
> *Very large junior department. Most enrolments from 1986 are Junior 3 or below.*
>
> *There is a large bulge of pupils at age 7 and 8 in Standard 1 and Standard 2. Many pupils change schools frequently.*
>
> *School divided in three syndicates - Standard 3 and 4, Junior 3 to Standard 2, Junior 1 and Junior 2.*
>
> *Large numbers due to the vertical groups, Standard 1 to 4 classes are within a whanau.*

There were comments about the basis for allocation. Several Principals voiced the opinion that the ethnic composition of the school should be more important than the size of the roll in deciding on the allocation of 1:20 staffing. One Principal wrote:

> *With the intake changing to non-European children, ESL (English as a Second Language) is becoming the norm.*

Appreciation

A number of Principals added appreciative comments about the policy, saying that they could 'use more staff profitably' the improved staffing had 'raised the grade of the school', 'helped meet the changing needs of the school enrolment', and had given 'a great boost to school morale'.

Discussion

To quote one District Senior Inspector:

> *Developmental approaches, variable-space buildings and various part-time teacher allocations have over the years given Principals some capacity to group and regroup children according to needs, vary the size of such groupings and allow teachers to express their talents in ways in which they are best suited. This initial improvement in staffing that 1:20 brings should encourage further growth in such practices.*[14]

The 1:20 policy message had a lengthy journey. From politicians, to planners in the Head Office of the Department of Education and their advisers, to District Senior Inspectors of Schools, to the Advisers to Junior Classes, to Principals of 369 schools, to Senior Teachers Junior Classes, to the classroom teachers who put the policy into practice and to the parents of Junior School children. Each played a different role in its implementation.

The principles for the use of the 1:20 teacher promulgated by the Department of Education and the New Zealand Educational Institute are particularly associated with variable-space buildings, staff working co-operatively and child-centred learning. It is still the case that the majority of schools have single cell classrooms, but it should be noted that developmental approaches, child-centred grouping, teaching of children according to their needs, varying group size and encouraging teachers to use their special skills are all reported by schools organised in single cell classes. Therefore, the underlying goals of the policy were being met, although the physical constraints imposed by the arrangement of schools in single cell classrooms, may mean that the policy cannot be implemented precisely as envisaged. The survey suggested, for example, that the 1:20 resource was being used more often in the first two rather than all three years of the Junior School.

If implementation of the 1:20 policy is to continue along the same lines, there will need to be more in-service training, directed in particular to classroom teachers, in order to:

1. Explain the aims of the policy so that teachers feel more comfortable with it.

2. To prepare teachers for working in a team.

3. To encourage the better diagnosis of the needs of individual children.

The analysis in this study was based for the most part on people's perceptions of how the policy was developed and implemented. There were differing interpretations of the policy by schools and it seems likely that even those schools which reported using small group and individual teaching methods as a consequence of the additional staffing may have been interpreting these in quite diverse ways. This could be clarified by observation in classrooms to establish how organisational patterns of the kind intended as a result of the policy affect children's learning behaviour and school progress.

The 1:20 staffing policy in junior classes was a large-scale administrative exercise which had to be implemented in a very short period of time. A practical difficulty for the Department of Education lay in managing the first two phases of the 1:20 allocation while at the same time respecting the autonomy of the Principals. Nevertheless, as the comparison of the 1985-only and 1986 schools showed, the intentions of the implementation were being achieved by the time of the second allocation.

It was inevitable that information about the implementation of the 1:20 policy had to be through dissemination from a central source to the periphery. The survey showed that as the policy extended outward to the different groups involved, patterns of communication varied and consultation became increasingly tenuous. The parents and the community received the weakest messages of all. Some of the messages became scrambled. For example, it was never intended that the Senior Teacher Junior Classes would fill the role of the 1:20 teacher. However, in the Wellington Board area at least, the profile of the person envisaged to fill the 1:20 role included reference to a senior teacher who could be a role model in providing an example of quality teaching and a circular was distributed in the Auckland area giving the pros

and cons of the Senior Teacher Junior Classes in the 1:20 role. For some, this seemed to suggest that the Senior Teacher Junior Classes should fill the role.

A number of conditions are necessary for the successful implementation of new policy.[15] There needs to be clarity of understanding about the goals of the innovation. A commitment by staff is also necessary for successful change. The NZCER study showed that the new policy was well received in schools where the flexible implementation and 'arithmetical device' concept coincided with the views of Principals and staff. But the study also showed that in many schools both Principals and staff believed that children's needs could be met as well or better using the conventional structure of one teacher to a single classroom. Moreover, although it had always been official policy that 1:20 would eventually take over Reading Recovery, schools were surprised when they found that any existing Reading Recovery allocation had been offset against the 1:20 allocation or that they were required to provide Reading Recovery as part of the 1:20 allocation.

The schools that received extra staff in 1985 did not differ greatly from those which received extra staff in 1986. They were all large schools - rolls over 150 - many of them organised into single cell classrooms. What these schools were being asked to do with the 1:20 staff, that is to organize teaching for individuals and small groups, probably did not fit easily in with their organisational arrangements and teaching practices. For example, in single cell classrooms teachers are much more likely to plan and act independently of other staff. But, as noted earlier, asking schools to use the 1:20 staff flexibly necessitated teachers working co-operatively as a team, having a collegial approach and together planning child-centred programmes.

Qualities of a good Junior School Teacher[16]

A further aspect of change is concerned with how the teachers who have to implement it see as their basic role.

Evaluation of the Implementation

The objectives for the implementation of the 1:20 policy were organisational changes involving decisions about the management of the classroom and diagnosis to improve the quality of schooling. How do such changes relate to school level perceptions of a good teacher of young children?

A section of the questionnaire was designed to identify the qualities which Principals, Senior Teachers Junior Classes and Junior School Teachers believe to be important in a good Junior School teacher.

The concept of an 'ideal type' after Max Weber was used as the theoretical framework for analysis. Several different models of the role and function of the good Junior School teacher emerged, and three ideal types were identified:

1. The mother model - characterised by personal qualities such as sympathy and love for children, warmth of personality and personal maturity.

2. The instructor model - the teacher who has a thorough knowledge of the curriculum and the skills to impart this knowledge.

3. The manager model - the teacher who is an effective manager of time, space, material resources and personnel.

Analysis of the views of Principals, Senior Teachers Junior Classes and Junior School teachers showed a marked consistency across the three groups. The most significant finding was the importance they all placed on qualities associated with mothering. Over 80 percent gave importance to qualities such as warmth and sympathy for children.

The answers of nearly two-thirds of the sample mentioned qualities which reflected a mix of models but the common element in these was the mother model. Rather more than half linked this to the teacher as an efficient instructor and a smaller number to the teacher as manager of the classroom.

More Teachers, Fewer Pupils

Only a small group did not include qualities associated with the mother model in their view of the good junior school teacher. Where this did occur, however, the teacher was more likely to be perceived as an instructor rather than as a manager. Since the desired implementation of the 1:20 policy depended very much on the management of the classroom it is important to understand the hierarchy of qualities associated with the ideal of a teacher of young school children.

Conclusion

An educational change can be a first or a second order change.[17] First order change is the modification or adaptation of existing or administrative practices. Second order change is more radical, occurring when policies and practices are adopted as a consequence of changed teacher values. In those schools where there was a mismatch between the values of the teachers and the values underlying flexible teaching practices, it is likely that second order change did not occur or that changes were superficial. To achieve radical change it is generally necessary for teachers and administrators to take time to analyze and discuss these differences together.

> *The success we achieve for our children depends to a large extent on the understanding teachers have of this new policy and how, having adapted their programmes to the flexibility the lower ratio will provide, they interpret the application of the 1:20 ratio to the parents of their pupils.*[18]

We can conclude that staff in the schools are most supportive of the policy and anxious to keep the gains they have made. Some of the problems with implementation which the survey has found point to aspects which can be improved as implementation continues.

Note:

Anyone interested in the actual wording of the questions in the questionnaire, or in obtaining further information about the project, may write to:

The Junior School Study
NZCER
PO Box 3237
WELLINGTON

Notes and references

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1. These teachers are now called Deputy Principals/Assistant Principals (Junior Classes). We will use the earlier title in this report.

2. See Wylie in this volume.

3. Sashi Meanger assisted with the organisation and analysis of the this part of the survey.

4. GSC is a guaranteed staffing component which means that part teacher positions can be rounded off to full positions. Such positions cannot be advertised as permanent and must be filled by long-term relieving staff.

5. Maori early childhood centres conducted by Maori communities and using the Maori language.

6. *NatEd Newsletter*, 19 June 1985, emphasis in original.

7. *NatEd Newsletter*, 19 June 1985

8. *NatEd Newsletter*, 19 June 1985

9. In some instances an explanation was necessary because a parent arrived at school with a five-year-old and asked that the child should go into the '1:20 class'.

10. Wellington Education Board, DSI's newsletter November-December 1985; Hamilton Education Board, DSI's newsletter Number 4, 1985 (after September intake),

11. Peter Cameron and Graham Robinson, 'Ten Years of Open Plan', *set*, No. 1, 1984.

12. *NatEd Newsletter*, 6 June 1985.

13. Regulation 31d relates to the discretionary power of the District Senior Inspector to appoint extra staff to schools with special needs.

14. District Senior Inspector, Wellington. Memorandum to Principals of schools with 1:20 staffing, 3 December, 1986.

15. The discussion of the conditions necessary to implement educational innovation in an effective manner is largely based on theory developed by N. Gross, J.B. Giacquinta, and M. Bernstein, in *Implementing Organisation Innovations, New York, Basic Books, 1971.*

16. Santosh Khanna assisted with the analysis of this topic.

17. J. Hage, *Theories of Organization : Form Process and Transformation.* New York : Wiley Interscience, 1980, Viviane M.J. Robinson. 'The Complexity of School Improvement, in, P.D.K. Ramsay (ed.), *Family School and Community,* Allen and Unwin, Sydney, 1984.

18. Ruth Mansell in *NatEd Newsletter,* 6 November 1987

Appendix A

Advisory Committee for the project : Hans Wagemaker, Department of Education; Ken Foster, Department of Education; Dick Grace, Department of Education; Anne McKinnon, Department of Education; Val Dell, Adviser to Junior Classes; Ruth Mansell, NZEI; Neil Sutherland, Strathmore Park School; Rachel Mackey, Waiwhetu School; Brian Hennessey, Wellington Teachers College; Anne Meade, NZCER; Cedric Croft, NZCER; Val Podmore, NZCER.

Project Officers : Margery Renwick, Lynne Smith, June Vize

Appendix B

Criteria for determining notional roll school status (Education Department Circular)

The following criteria should be used to establish a school's eligibility to be designated as a notional roll school. Each designated school may not meet all the criteria but the expectation is that at least 10 of the 13 criteria would be applicable.

1 English is a second language for at least 80% of the pupils.

2 A significant proportion of the pupils experience difficulties with English because of a lack of variety of experience on which to base language development.

3 At least 80% of the enrolment is multi-ethnic.

4 There is evidence of general low achievement.

5 There is a high incidence of health problems.

6 A significant number of pupils with social problems attend the school.

7 Speech defects among pupils are common.

8 There IS an unusually high number of cases handled by the Psychological Service.

9 There is a large annual turnover of pupils.

10 There are unpredictable fluctuations in roll numbers.

11 There are special staffing problems, e.g.:

- a lack of relievers;
- inexperienced staff/senior staff;
- work related illness;
- difficulty in attracting suitable, permanent staff;
- high turnover.

12 The socio-economic status of the local community is generally low.

13. There is a lack of pre-school facilities in the community.

CHAPTER 3

PUPIL PROGRESS, READING RECOVERY, AND THE 1:20 TEACHER-PUPIL RATIO POLICY IN THE JUNIOR SCHOOL

Geraldine McDonald

It is important to know whether or not a particular policy is going to have the results that people hope it will produce. Although Reading Recovery has succeeded in raising the standard of reading and writing amongst children at risk, this has not been accompanied by parallel changes in the rate of children's progress out of the junior classes. It may be argued that Reading Recovery was not meant to reduce the overall holdback rates in the junior classes but I have gained the impression that, whatever was intended, most people believe that this will be one of its effects.[1] If Reading Recovery has not speeded up children's progress through promotion then for similar reasons the 1:20 staffing policy is also unlikely to do so. Moreover, there is a risk that both Reading Recovery and the 1:20 policy could increase the proportion of children held back for a further year and this possibility will be discussed at the conclusion of the chapter.

The information in this chapter should not be interpreted as a criticism of the Reading Recovery programme or of the 1:20 policy. Nor is it a criticism of teachers or of administrators. It is intended to show how one part of an education system may block a hoped-for result from an educational reform in another part of the system. The explanation happens to use Reading Recovery because this resource has become part of the 1:20 implementation, and because good records are available for the children who have been through it. I could have chosen other measures such as the steady spread of early childhood education in recent years, or any curriculum reforms targeted at the early years of schooling, to demonstrate that whatever effects these measures have had on standards of achievement they do not influence the rate of progress of pupils through the school system.

More Teachers, Fewer Pupils

Reading Recovery linked to 1:20

In 1984 the government policy on 1:20 was worded as follows:

> *Implement, as quickly as possible, a ratio of 1:20 in junior classes (the first three years) beginning with the full staffing and resources necessary for the nationwide coverage of the Reading Recovery Programme.*

The first 260 positions provided under the 1:20 policy were directed towards Reading Recovery, and the next 600 positions were provided to advance 1:20 policy and Reading Recovery.

Prior to 1984, many schools provided Reading Recovery staffing from regulation 31d special needs sources and, with the later provision of 260 positions for Reading Recovery, this ad hoc staffing was replaced by the 1:20 policy. Because 1:20 provides resources which enable schools to provide Reading Recovery, the policies are closely linked. When nationwide coverage of Reading Recovery and the full implementation of 1:20 are completed the resources will be indistinguishable. Schools will be staffed under 1:20 and from this source they will provide Reading Recovery to the level required.

The Reading Recovery goal is to take six-year-olds experiencing reading difficulties, to help them recover lost ground quickly and to return them to average levels of reading and writing so that they can benefit from normal classroom instruction. The level to be reached is determined by class average and not by national average. The number of children who take part in any year at any school is dependent upon the amount of time provided for Re ng Recovery and upon the progress of children within the programme. The programme takes the six-year-olds who are the lowest text readers in their class. The time per child is half an hour a day. Therefore, if a school allocates two hours for Reading Recovery the teacher can take four children at a time. When these children have reached a satisfactory level, more children can enter the programme.

Children are identified in the six-year-old net and this assessment is usually carried out between 6 years, and 6 years and 6 months.

> *Children are in the programme about 12-15 weeks and have been at school for about 18 months at the end of their programme* (Clay, 1987, 169).

Two kinds of progress

'School progress' has a double meaning. It can mean that children master curriculum material at a more and more advanced level or it may refer to children's progress from one level, grade or class to the next. Learning the content of the curriculum takes place continuously but promotion generally occurs only at fixed points such as the end of each school year. As one commentator has expressed it,

> *It is important to remember that success in school is not simply measured in terms of achievement but rather achievement within a given time period.* (Frick, 1986, 10)

So far as the community is concerned promotion may be a more important indicator of success at school than gains in achievement. Rate of promotion is a key indicator of both system efficiency and its effectiveness for pupils. Yet it is part of the largely invisible scaffolding of schooling - a structure which frequently produces results which seem to fly in the face of commonsense and good intentions. It is a structure which teachers do not cause and one over which they have limited control.

The Regulations

The regulations on promotion in the primary school are contained in the *Organisation and Inspection of State Schools Regulations 1963.* The Principal of the school is responsible for the classification of pupils. Promotion is no longer based on standards of achievement as was the original standards system. By specifying a period of eight years as the normal length of the primary school course the regulations effectively match age to class level.

More Teachers, Fewer Pupils

The New Zealand custom of permitting individual entry on a child's fifth birthday, historically a purely pragmatic decision (Birch & Birch, 1970), means that children spend varying amounts of time in the junior classes. Because of this the regulations single out children born in the middle of the year. Teachers are required to make decisions about whether or not these children are to be promoted or accelerated. For these children promotion is meant to be 'flexible' and based on progress and maturity.[2] The regulations allow the mid-year entrants to be promoted according to age, accelerated in advance of their peers or retained for a further year. This is a compromise between automatic, or age promotion, and flexibility. That teachers accept the notion of flexibility can be seen in Margery Renwick's (1984) study of school entry.

If age promotion were followed to the letter, children who are six-and-a-half years and who had spent 18 months in the junior classes would be entitled to be promoted if they were not mentally retarded, very low in achievement or abnormally immature. At the end of the year in which they were to be promoted, children would have spent between one-and-a-half and two-and-a-half years in the junior classes and would be between six-and-a-half and seven-and-a-half years of age. When these regulations were passed a quarter of a century ago there was already substantial non-promotion and, therefore, holding back of the children in the junior school; a residue of the original backlog caused by the introduction of standards last century.

Retention in the junior classes

Holding back has always been more common than acceleration (McKenzie, 1960). Today, hardly any children are accelerated. For example, the proportions accelerated in 1985 were 0.49 percent of the age cohort at age 6, 0.74 percent at age 7, 0.89 percent at age 8, 0.95 percent at age 9 and 1.18 percent at age 10. It seems that the gradual movement towards age promotion has reduced the earlier practice of 'skipping' a class, which used to be permitted up to standard 4, and acceleration rates have accordingly shrunk - although they were always very slight.

A fifth to a quarter of each age cohort, over 10,000 children, are held back every year at the point at which they move from the junior classes to the standards suggesting that teachers are promoting very few of the younger children who are eligible and that some of the older children are also being held back. A large proportion of the group held back have birthdates in April, May and June. The holdback rate declines as children's ages within a calendar year, increase. Within this large group of retained children there are enduring differentials on the basis of sex (Thompson, 1983; Panckhurst, 1962; Colgan, 1958) and race (McDonald, 1988a). Non-Maori girls have the greatest chance of being promoted, then non-Maori boys, then Maori girls and finally Maori boys, for whom race and gender differentials interact to create the greatest disadvantage. Similar differences exist in other school systems which have substantial retention rates (see, for example, Cates and Ash, 1983).

Achievement and Promotion

What individual teachers observe is a small number of children within their own classrooms whom they believe could benefit from being held back. For these children achievement is one of the factors to be taken into account. However, national promotion rates (as distinct from the chances of individual children being promoted) are not determined by the level of achievement of pupils. National rates reflect the numbers of promotion places available. Moreover, even in the case of individual children, achievement is not necessarily reflected in promotion.

> *We have the same rule for all. We let them go up if they're slow but not if they're immature.* (Principal)

Amount of room in the next class or pressure in the present one have a lot to do with how many children go up and how many stay behind. The following extract is taken from a report on the organisation of the Junior School.

> *As the roll increased, four J3 chilren were transferred to the senior school at the beginning of Term 2 and again in Term 3 to a J3-S2 class.*

More Teachers, Fewer Pupils

Standard classes taught by inexperienced teachers may be kept small and, therefore, have less room in them. Schools differ in their overall retention rates and teachers vary in the criteria they use for promotion decisions (Blayney, 1966; Panckhurst, 1963).

> *My school uses April as its cutoff. I know a school which uses January.* (Principal)

Because a child's achievement is relative to that of the others in the class (Panckhurst, 1963; Wade, 1978; Evans, 1949) what counts as a satisfactory level of achievement in one school would be insufficient in another. Children of parents who complain if the school proposes to retain their child are more likely to go up than those whose parents remain silent (McDonald, 1988b).

> *I got wind of the fact that they were intending to keep her back and I went straight down to the school.* (Parent)

This is a situation not unique to New Zealand.

> *Some parents may be more effective than others in influencing the decision to promote or retain their child.* (Cadigan et al., 1988)

Children whom teachers feel they do not know very well, perhaps because of the child's recent transfer from another school, are more likely to stay back than similar children whom teachers do know well. Big children are more likely to go up than small children. Children who attend regularly are likelier candidates for promotion than irregular attenders. Nor should it be forgotten that a majority of children go up on the single criterion of age and that, in practice, the selection process applies mainly to children whose accident of birth brings them into school for the first time during the first half of any year (not, as envisaged by the regulations, the middle of the year). A major factor in the holdback rate is that schools interpret 'immaturity' as meaning the youngest in the class. Controlling the whole process is the size of the age cohorts since, although age does not match class level (a class will typically contain pupils across a range of 3 years),

class populations are closely matched in size to the age cohort appropriate to the class level. That is what causes the inheritance of the promotion pattern from year to year. As a result of retention without compensatory acceleration, roll sizes at the first two or three levels of schooling are inflated by the number of children kept back.

Has the Reading Recovery programme reduced the overall rate of retention?

The year 1987 offered a unique opportunity to look at the effects of Reading Recovery. Reading Recovery began in Auckland in 1979, and in Hamilton in 1981. National tutor training began in 1982 and national implementation in 1983. Schools operating Reading Recovery have not necessarily remained in the scheme. A small number have dropped out for reasons such as teacher mobility and the school being unable to find a replacement Reading Recovery teacher.

Statistical summaries of the programme prepared by the Department of Education are based on figures collected at the end of the school year. Most children would be eligible for promotion on the grounds of their age in the year in which they entered the programme.

In 1983 few schools had the benefit of the programme. In 1984, 6 percent of the 6-year-old cohort entered the programme and 4 percent of the cohort made successful progress through it. In 1985 the equivalent figures were 10 percent of the age cohort entered and 6 percent of the age cohort made successful progress. In 1986, 15 percent of the age cohort entered and 9 percent made successful progress. In 1987, 19 percent entered and 12 percent made successful progress. Therefore, over the years 1984-87 there has been a steady rise (4-12 percent) in the proportion of the 6-year-old cohort successfully completing the programme.[3]

In 1987 the Reading Recovery programme had not reached all schools and the 1:20 policy had not had time to influence either the 1985 or 1987 rates of retention. The holdback rate of 8-year-olds in 1985, when Reading Recovery could not have been expected to have any great effect were able to be compared with the rate in 1987 when any acceleration in promotion as a consequence of Reading Recovery could have been expected to show up.

More Teachers, Fewer Pupils

There were some changes in the 8-year-old population between 1985 and 1987. The Maori group increased by nearly 200. The non-Maori decreased by nearly 3000. The population of boys declined by about 7 percent and the population of girls declined by just over 3 percent. The percentage of 8-year-old Maori pupils rose to nearly 19 percent. There were also changes in some definitions used in the presentation of the statistics. Children in a former 'unclassified' category began, in 1986, to be included in a wider 'special' category.

I began by examining the national retention rates for 8-year-olds in 1985 (these children would have been 6 in 1983) and the same rates for 8-year-olds in 1987 (these children would have been 6 in 1985).

The retention rates and the gender differentials are shown in Table 1. The proportion of 8-year-olds who had been held back, had declined by only 0.3 percent and it is possible that this improvement was due to population changes, or changes in the definitions used in the statistics. A reduction of 0.3 percent in the number of children held back is very much less than might have been expected on the basis of the improvement in cohort achievement through Reading Recovery in 1985.

Table 1

*Percentage Retention and Sex Differentials at Age 8**

	1985 %	1987 %
Overall retention	22.5	22.2
Cohort size	52786	49873
Gender differential	4.2	4.8

* Unclassified pupils have been removed before calculations based on the 1985 figures and pupils in special classes and schools have been removed before calculations based on the 1987 figures.

The period 1985-87 was also the time during which Te Kohanga Reo might have been expected to show some effects on the promotion of Maori children. The first Kohanga Reo was opened in 1982 and at 1 July 1985 it reached more than 6000 Maori children in over 400 centres (Smith & Swain, 1988).

The sex differential had increased by 0.6 percent between 1985 and 1987 showing that boys could not have increased their chances of promotion.

Comparing the 1985 with the 1987 national retention rates is hardly an exhaustive test of the effects of Reading Recovery.

The next step was to compare the 1987 retention rates for the blocks of schools which had had a Reading Recovery programme in operation at any time including 1987, with schools which had never had a Reading Recovery programme. The schools which had never had Reading Recovery turned out to have the *lowest* holdback rates. Their overall rate was 20.6 percent at age 8. The Reading Recovery schools had a holdback rate of 22.7 percent. A difference of this order existed also at ages 7, 9 and 10. The schools without Reading Recovery programmes tend to be smaller schools and my earlier research had shown a 2 percent difference in retention rates between the two types of schools. This finding strongly suggested that in analysing promotion one had to take into account the influence of school characteristics.

The next procedure was to examine changes in holdback rates from year to year accompanying the spread of the Reading Recovery programme across schools and across the 6-year-old population. The Reading Recovery resource went first to schools with the greatest need and this reinforced the necessity to check for the influence of school characteristics. Further, in implementing the Reading Recovery programme the first year is one in which teachers take some time out from teaching to be trained.

The following research strategy was adopted. Officers of the Research and Statistics Division of the Department of Education identified 10 different categories of schools according to their Reading Recovery histories. The schools varied according to the year in which their Reading Recovery programme started. Some had previously had a programme but did not have one in 1987.

More Teachers, Fewer Pupils

There was one group of schools in which the programme began only in 1987 and which could not be expected to have shown any changes in rates of promotion in the statistics collected in the middle of that year. There was also a group of schools which had never had a programme. School variations were then examined by dividing the schools into three groups.

1. Schools which had never had a Reading Recovery programme (No RR Schools)

2. Schools which first had a Reading Recovery programme in 1987 ('87 RR Schools)

3. All schools which had had a Reading Recovery programme up to 1986 (All RR Schools to '86)

This permitted an examination of holdback patterns over time. It also allowed differences in holdback rates between each category of school to be analysed. Cohort variations were examined by calculating the percentage holdback rates in the groups of schools in 1987 at four age levels: 7, 8, 9 and 10. The oldest cohort had had least access to Reading Recovery and the youngest had had greatest access. The results are shown in Table 2.

Table 2

1987 Retention and Sex Differentials in Schools With and Without a Reading Recovery Programme

Age	No RR Schools %	Sex Differentials %	'87 RR Schools %	Sex Differentials %	All RR Schools to '86 %	Sex Differentials %	Cohort Size N
7	23.55 (11152)*	4.99	24.83 (5152)	3.74	24.23 (33354)	3.23	49658
8	20.49 (11129)	5.9	21.81 (5222)	4.71	22.80 (33522)	4.51	49873
9	20.48 (11179)	4.62	20.93 (5127)	4.78	23.68 (32953)	4.62	49259
10	20.87 (11507)	5.05	22.76 (5276)	4.18	23.39 (34111)	4.64	50894

Note : The numbers in brackets are the sizes of the age cohorts. Acceleration at age 7 across all schools was 0.61 percent, at age 8, 0.6 percent, at age 9, 0.78 percent and at age 10, 0.31 percent.

The pattern of retention, promotion and acceleration is similar across the blocks of schools with differing Reading Recovery histories. It consists of a substantial retention rate appearing at age 7 followed by a 1 to 3 percent reduction at age 8, almost certainly because some schools delay the promotion decision for certain children until their third year of schooling. Thereafter, there is a tendency towards a slight increase in holding children back as age increases. It can be seen that there was no variation across the samples of a magnitude which would point to Reading Recovery having had any effect on national promotion rates in any year and certainly not at age 7 where one might have expected to see change.

More Teachers, Fewer Pupils

Changes from 1985 to 1987 can be summarised as follows. The calculations did not include special or unclassified children and the percentages are for each population group considered separately and, therefore, the changes in the sex and race composition of the school population are accounted for.[4]

1. There was an increase (2.34 percent) in the proportion of Maori children promoted.

2. There was a decrease (.04 percent) in the proportion of non-Maori children promoted.

3. There was a decrease for both groups in the proportions accelerated.

4. In both Maori and non-Maori groups the male-female differential increased in favour of the girls.

In terms of numbers the net gain in promotion to standard 2 or above between 1985 and 1987 was 126 places (cohort size about 50,000). When the samples were adjusted for size it was found that Maori children gained 147 more places than they would have obtained at 1985 rates while the non-Maori group lost 21.

A gain of 126 is too small to properly reflect the success of the Reading Recovery programme in improving achievement in literacy. If the Reading Recovery programme is responsible for the 147 additional Maori children who were promoted is it also responsible for the 21 non-Maori children who were not? It is hard to escape the conclusion that because of the inflexibility of the promotion system, Reading Recovery may have helped a few more Maori children to progress to the next class while the promotion system kept the non-Maori back. It is good that there was a closing of the gap, however slight, between Maori and non-Maori but the concomitant widening of the gap between boys and girls illustrates the eccentricities of the present system.

Can the Reading Recovery programme increase holdback rates?

In 1987, 1,582 of the children in Reading Recovery had already been through the programme in 1986. Holding children back because they did not reach the required level in Reading Recovery has been masked by the greater rate of retention overall. The children concerned were probably the ones who would have been kept back anyway.

It may seem paradoxical that improving pupils' achievement level does not speed up promotion, while a policy which introduces a particular standard to be reached is capable of slowing it down. Reading Recovery was never intended to keep children back but it can easily operate in this manner. The Reading Recovery programme has not failed. On the contrary the promotion system does not allow Reading Recovery to succeed in accelerating the progress of pupils. It is the promotion system which fails the pupils.

Policy implications

These results have policy implications and not only for the effective use of the Reading Recovery resource. They also raise questions about the 1:20 policy and its relationship to the progress of pupils. The 1:20 policy, like Reading Recovery, will reduce the holdback rate only if the promotion system is responsive to any effects the policy may have.

The 1:20 policy is too new and the reduction in ratios in junior classes not yet large enough to be able to say whether 1:20 actually has speeded up pupil progress through promotion but it is quite possible to say that it is unlikely to do so because, like Reading Recovery, it does not influence the major mechanisms such as the size of the age cohorts entering the school system, a child's birth date, or a school's cut-off date for promotion all of which do control promotion rates.

Wherever in the world children are held back this operates to further disadvantage the socially disadvantaged. If the overall rate of retention merely shrank a little as a result of the 1:20 policy or, more likely, some other factor, such as national guidelines on promotion rates (Simpson, 1959) one can still ask whether it would make a difference to the bias against boys

and Maori which shows up in promotion. Guidelines on promotion rates might not make a great deal of difference to fairness. An earlier examination was made of the holdback rates in the junior classes for boys, girls, Maori and non-Maori in small schools (150 pupils or less) compared with large schools (151 or more pupils) (McDonald, 1988c). The small schools have groups of fewer than 20 at each age and class level and classes in small schools have an upper limit of 25 rather than 31 as in large schools. In small schools the overall retention turned out to be nearly 2 percent less than in large schools but the bias against boys and Maori was greater. These results cannot be attributed to the issue of staffing ratios without further investigation but it does suggest the possibility that the already advantaged non-Maori girls reap the greatest benefits of better access to a teacher by seeking help and making sure that the teacher notes their progress. This possibility also emerged from the results of an unpublished study in which advisers to Junior Classes each observed a junior school child over the course of a day.[5]

It would be as naive to assume that problems of school achievement would be resolved by eliminating retention as it is to assume that they have been resolved by keeping pupils back. In the light of the present research it would seem that so long as the current retention practices remain, the effectiveness of a policy of concentrating resources in the early years will be reduced. Support should be available at all levels for students having difficulties in learning. If Reading Recovery teachers worked also in the higher standards then there would be less need to retain children in the junior classes if they did not at first succeed in the programme.

We must also consider the possibility that there will be a temptation to keep back some children in the junior classes simply on the grounds that they would continue to get the benefit of favourable staffing ratios as a consequence of the 1:20 policy. If resources are confined to the beginning years of school there will be a risk that children will be kept back to gain the advantage of these resources.

There are ample signs that there will be pressures in the future towards further holdback. For example, in the present climate of anxiety over schooling, and calls for the raising of standards, communities may want to

operate checkpoint testing and promotional gates using standardised tests. As the experience of the United States has shown, this reduces the efficiency of schooling and makes it more expensive as well as decreasing its effectiveness and fairness. To date there appears to be no research using control groups which shows that retention practices raise standards across age cohorts (Smith and Shepard, 1987; Chafe, 1984; Kenny, 1988). Added to our present holdback rates, practices of this kind could result in over 30 percent of our children in a class below that appropriate to their age. We might have raised standards in the classes of promoted children but would have lowered standards across the age cohorts for the very simple reason that children work within the challenge of a class level. Keep them back, and you reduce the challenge.

Conclusion

* While the present rates of retention and the race and sex biases within these remain, the beneficial effects of placing educational resources at the early childhood or junior school level are likely to be seriously diminished.

* Promotion of most of the retained children currently swelling roll sizes in the first two or three years of schooling would, besides eliminating these biases, allow much more rapid implementation of the 1:20 policy.

* In assessing the effects of Reading Recovery and the 1:20 policy, promotion patterns should be taken into account.

It would be most unjust to blame teachers for holdback rates. Teachers do not cause the rates because they do not determine the structure of schooling. Teachers work within this structure, adjust to it, and are bound by it just as their pupils are. Promotion is a policy issue. The topic of promotion and how it works is poorly understood. Yet it is as central to the functioning of education as it is to the fate of individual children. A promotion system is a product of social values maintained by institutional inertia. Perhaps we want a sluggish system with retention differences between Maori and non-Maori, boys and girls. Perhaps we do not.

More Teachers, Fewer Pupils

Much remains to be discovered about the causes and effects of promotion decisions for children. But in the interests of equity, and of efficient use of resources, any insights gained into how the system operates, and what causes it to operate this way, should be taken into account in the process of policy making.

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Notes

1. In this chapter 'holdback rates' and 'retention rates' both refer to keeping children back in the junior classes when they would be entitled, on the grounds of age, to go up to the next class. The word 'retention' is used in the United States to refer to holding students back in grade. However, in New Zealand 'retention' is more generally associated with keeping students in secondary school. The use of 'holdback rates' is intended to remove the possible confusion.

2. The concern for social adjustment as well as achievement is shown in Logan (1954) and Ross (1986).

3. These percentages probably slightly overestimate the 6-year-old success rate because some of the successes will be 7-year-olds re-entering the programme.

4. The Maori representation in the 'special' group in 1987 was twice as great as their representation in the 'unclassified' group in 1985. Maori children were 40.70 percent of all special children.

5. This study was carried out by Geraldine McDonald, Anne McKinnon, Margaret Mooney, Lesley Allen and Advisers to Junior Classes as part of the 1:20 project.

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CHAPTER 4

CLASS SIZE: A REVIEW OF THE LITERATURE RELATING TO THE EARLY YEARS OF SCHOOLING

Valerie N. Podmore

The issue of class size has been under scrutiny for almost a century. During the 1970s and 1980s there have been extensive reviews of the effects of class size and of related research matters. The intention of this further review is to examine research and literature concerned with class size effects in the early years of school.

Six major topics are evident in the more recent literature on class size. These are:

1. Class size and children's achievement;
2. Class size and other child variables (pupil affect and behaviour);
3. Class size and teacher variables (satisfaction and stress);
4. Class size and organizational and instructional variables;
5. Class size and cost effectiveness;
6. The unique characteristics of small classes.

The review is organized around these themes, and examples are given of studies from each of the six groups.

More Teachers, Fewer Pupils

Class size and children's achievement

According to two prominent US analysts of class size Glass and Smith (1978), there have been four different stages in the development of the research concerned with class size and pupils' achievement. Glass and Smith describe these stages as

> *...the pre-experimental era (1895-1920);*
> *the primitive experimental era (1920-1940);*
> *the large-group technology era (1950-1970);*
> *and the individualisation era (1980-present).*
> (Glass and Smith, 1978, p.4)

The research methods used to study class size have become more complex over time.

Critical events like the rising birth rate in a number of countries during the late 1940s, the expansion of teaching technology in the US during the 1960s, and the emergence of professional unions and associations of teachers, have also had some influence on interest in and interpretation of the research concerned with class size and achievement. For example, Glass, Cahen, Smith, and Filby (1982) have pointed out that a number of researchers conducting experimental studies in the US between 1957 and 1964 concluded that older secondary school students learnt as well in larger classes (40 to 50) as in smaller classes (20 to 30). At that point in time, the older students were children who had been born during the 1940s baby boom, and the weight of their numbers could have stretched educational resources. Consequently Glass and colleagues questioned whether the researchers, by reporting that 'research proves that although enrolments may double, costs may stay the same', were 'discovering the facts that the educational establishment of the time wanted to hear' (Glass et.al, 1982, p. 38-39). It does seem reasonable to assume that, through the decades, interpretations of the class size research have not been made in isolation from social and cultural contexts and political realities.

Class size certainly became a more prominent concern of teachers, researchers, and administrators after Glass and Smith (1978) and Smith and Glass (1979) published their own research. They reviewed and brought together the findings from 77 studies which included 725 comparisons of achievement in different sized classes. These studies had been carried out in 12 different countries. They used the technique of meta-analysis to aggregate the statistical results across the studies. (See Glass & Smith, 1978; Cahon, Smith & Filby, 1982; Hedges & Stock, 1983). The meta-analysis results showed that there was an overall tendency for more marked gains to occur among students in classes of less than 20.

More specifically, Glass and his colleagues concluded that if a student were taught for more than 100 hours in a class of 20 pupils, her or his achievement would exceed that of 60 percent of pupils taught in class sizes of 40 (Glass, Cahen, Smith, & Filby, 1982, p.49). In addition, achievement gains were clearly evident for pupils in very small classes of 15 or fewer than 15 students.

Another research group in the USA, Educational Research Service (ERS), have strongly criticised Glass and Smith's methods and conclusions. In their own review of the class size research, ERS (1978) did conclude tentatively that small classes are 'important to increased pupil achievement in reading and mathematics in the early primary grades.' It is interesting to note then, that ERS were not disputing the relevance of small class sizes to achievement in the first years of school. However, they did point out that research findings repeatedly show that 'the relationship between pupil achievement and class size is highly complex' (ERS, 1978, p.68-69).

More recently, statisticians Hedges and Stock (1983) have responded to the criticisms of Glass and Smith's report, by using alternative statistical methods to analyse the original data. Hedges and Stock found, though, that even when more rigorous optimal statistical analyses were performed, Glass and Smith's meta-analysis results were not affected in a major way:

> *Smaller classes will still lead to higher expected achievement than larger classes. Also, tests of significance confirm that class size accounts for a substantial amount of achievement variation, while also indicating that substantial sources of systematic variation remain to be explained.*
>
> (Hedges and Stock, 1983, p.83-84)

The studies included in Glass and colleagues' meta-analyses tended to define achievement in relation to children's performance on educational tests, or as teacher assessments of reading or mathematics. However, in the 'pre-experimental era' of 1900-1920s prior to the introduction of social promotion in the US, some researchers used promotion records as measures of achievement (e.g. Cornman, 1909; in Glass, Cahen, Smith and Filby, 1982). A much more recent study conducted in West Germany has included class size in the first years of school as an intervening variable and non-promotion as an outcome variable in an analysis of pre-school effects. This work by Tietze was not an expermental study, but a detailed analysis of the data obtained from official statistics gathered from elementary schools in one West German State. In a paper based on his prelimary analyses of the official statistics, Tietze (1987) developed an evaluation model and demonstrated that the process variable class size influenced both children's retention in Grade 1 and 2 and their assignment to special classes. Current class size research is more often concerned with young children's achievement in subject areas like reading and mathematics though, perhaps because promotion practices vary internationally and promotion by age is generally more prevalent than promotion by achievement.

Many researchers now suggest that the relationship between class size and achievement is likely to be indirect (Levin, Glass, & Meister, 1984; Mier, 1984). As Vignocchi (1982) has concluded, researchers need clear working definitions of large and small classes, and carefully controlled experimental designs. Factors such as instructional methods and materials, age and class level, and numerous characteristics of both teachers and pupils need to be considered when evaluating class size effects. It seems reasonable to suggest that we have now entered a fifth stage of class size research. With the increased sophistication of research methods and a rising concern with the

context in which children's development and education takes place, this fifth (1980s-) phase of the class size research could be described as the era of "the intervening variables." Current knowledge tends to suggest that class size can influence classroom processes, and that the impact of class size on young children's achievement is indirect.

Class size and other child variables

Pupil characteristics like age and ethnic group, and children's affective experiences in classrooms, are important considerations in studies of class size and group size. Several recent publications have reported strong links between class size and children's emotions, motivation, and classroom behaviour (e.g. Bain, Achilles, Caraher, & Whittington, 1986; Campbell & Robinson, 1983; Glass, Cahen, Smith & Filby, 1982). Glass et al. (1982) have described improvements in pupil affect, teacher affect, and instructional techniques when class size is reduced. To ascertain the quantitative relationship between class size and pupil/teacher affect, they plotted logarithmic curves based on 371 comparisons from 59 studies. One study was British, one Australian, 15% of them were Canadian, and the remainder were from the USA. Pupil affect was defined as an aggregation of 30 characteristics including self-concept, attendance, study habits, motivation, attention, anxiety, and student social interaction. Their analyses showed that the average pupil in a class of 30 is at the 50th percentile in attitude (for example, towards the class or the subject), but the average student in a class of 10 is at nearly the 70th percentile in attitude. Glass et al, concluded that class size,

> *affects pupils' attitudes, either as a function of better performance or by contributing to it. In smaller classes, pupils have more interest in learning. Perhaps there is less distraction.*
>
> (Glass et al., 1982, p.64-65).

They also concluded that the behaviour of pupils in smaller classes is more frequently on-task than the behaviour of their counterparts in larger classes.

In an Australian study, Campbell and Robinson (1983) have shown somewhat similarly that reducing class size from 36 to 26 is associated with a greater tendency for pupils to attend to the teacher and to be somewhat less withdrawn and less aggressive. Campbell and Robinson's study of class size effects was a natural experiment. Three groups were involved: the first group comprised 10 classes which had received a 36 to 26 *reduction* in class size, the second was a control group of 2 classes of 36 children - these control group classes were *not reduced* in size, and the third group contained 2 classes that were *increased* in size from 22 to 32 (included to control for the effect of change per se). All were primary school classes and the authors reported some age effects. Younger primary school children were described as more affected by crowding than older children. No difference in class size effects were found however, that could be attributed to child gender. Campbell and Robinson also suggested that, if the effects of crowding on pupils' behaviour are to be minimized, the ideal class size might be between 15 and 20 pupils, but they did stress that this was merely speculation.

Overall then, there is consensus that small class size has a positive effect on pupil behaviour during the early years of school (Cacha, 1982; Cahen, Filby, McCutcheon, & Kyle, 1983; Campbell & Robinson, 1983; ERS, 1978; Glass et al., 1982). Pupil affect, and more specifically children's classroom behaviour, seem important variables to consider when analysing class size effects in the junior school.

Class size and teacher variables

Glass et al. (1982) reported some strong relationships between class size and teacher affect. Teacher affect was defined here as an aggregate of seven variables: teacher organization and planning, morale, attitude toward students, perceptions and satisfaction, workload, absences, and professional growth. The curve plotting the relationship between class size and affective effects showed that, compared with pupil affect, teacher affect increased even more sharply as class size fell. Glass and associates reported that if a class of 30 pupils is reduced to 20 pupils, the teacher's satisfaction and

morale increases considerably in terms of percentile rank. Their curve showed that a teacher with a class size of 30 ranked 50th among 100 teachers, whereas if the class size were 20, that teacher would rank 68th on satisfaction.

Class size is one of many variables characteristically included in studies of teacher stress, turnover, satisfaction, or burnout (Russell, Altmaier, & Van Velzen, 1987; Galloway, Boswell, Panckhurst, Boswell, & Green, 1985). Galloway's research on teacher stress in New Zealand schools provides a local example. Sponsored in part by the NZEI, this project also illustrates a point made earlier, that the growth of teacher unions and associations has led to increased interest in class size research (Glass & Smith, 1978). Galloway et al. (1985) distributed a questionnaire on teacher satisfaction and dissatisfaction to primary teachers in the lower half of the North Island. After factor analysing the 291 usable questionnaires received, Galloway et al. reported that class size combined with other variables to form a factor called 'school administration and conditions of employment'. Other variables like the age and duties of their head teacher (age under 50 and a teaching head were associated with greater satisfaction) and playground organization also impinged upon teachers' satisfaction with administration and employment conditions.

The study by Galloway and colleagues (1985) demonstrates that interpreting this area of research can be complex, because in their analyses, class size was merged together with other aspects of teaching and conditions. However, their findings probably provide support for the view that class size is one variable that interacts with other classroom processes and school administration factors that lead to teacher satisfaction.

Class size and organisational/instructional variables

Some class size researchers have moved on to investigate instructional groupings within classes. Types of groupings found in studies of North American schools include cross-age tutoring (older children tutoring younger ones), pull-out programmes (where children are withdrawn from the regular classroom for extra instruction), developmental programmes, the use of learning centres, team teaching, the use of staggered or split scheduling

(different types of timetabling), and subject-matter groupings (Bossert, Barnett, & Filby, 1984; Klein, 1985). Although much of the class size research summarized in this review has been concerned with whole-class instruction by one teacher, some studies have also looked at ways in which small groups can be used effectively within classes.

One Australian study of children in their fifth year at primary school has indicated that mathematics achievement may not be enhanced by small group teaching if this takes place in larger classes. Bourke (1986) has developed a causal model linking teacher background, class size, teaching practices, and mean class achievement in mathematics (as measured on a test of the four arithmetical operations with whole numbers). Regression analyses showed that larger classes and more group work were associated with lower achievement, whereas smaller classes and whole-class teaching were associated with higher achievement in mathematics. (Class sizes ranged from 12 to 33 students, with a mean of 25.2). Whole-class teaching, prompting or probing students after asking a question, setting more homework, and having quieter classrooms were teaching practices that appeared to facilitate higher achievement in the smaller classes.

Other researchers have demonstrated that work in small groups can increase the amount of contact between teachers and pupils. However, it should be noted that grouping young children according to their general ability does tend to have adverse effects on the expectations and achievement of the children who are assigned to the lowest groups (Bossert et al., 1984; Klein, 1985; Savard & Cotton, 1983).

When class size is reduced, there is scope for the frequency or duration of interactions between the teacher and each student to increase. Hill (1981), another US researcher, considers that lowering class size to 20 or less may potentially improve the distribution of teacher-child interaction and lead to children's optimal achievement. For smaller class sizes to benefit students equitably, though, teachers would need to elicit more equal participation from students. International research certainly suggests that class size effects

are mediated by class or group dynamics and by the distribution of teachers' attention to different children (Albritton, 1984; Cahen et al., 1983; Hill, 1981).

Savard and Cotton (1983), who have reviewed recent research on effective schooling for migrant groups in the US, have pointed out that both class size and grouping arrangements within classes have specific effects on minority group pupils. Smaller class size (defined here as 1:15) and small groups within classes were seen as beneficial to minority group pupils, provided the groups were not streamed for ability. The effects of class and group size were also influenced by instructional processes. including systematic instructional patterns, more frequent teacher-child interaction, and prompt teacher feedback. Savard and Cotton concluded that, despite the expense, small classes are justifiable for minority groups if teachers simultaneously adopt instructional methods suitable for smaller sized groups.

In New Zealand Geraldine McDonald's recent study of Maori and non-Maori children's promotion certainly suggests that small school size is not associated with improved promotion opportunities for Maori pupils. The rate of promotion out of the junior school increases for non-Maori children in small schools and classes but Maori children are not promoted any more frequently (McDonald, 1988). Decreases in school size or class size may need to be combined then, with different promotion practices for Maori children.

A number of classroom studies have been reported here that investigate teacher-child interaction with minority ethnic group samples (see Archer & Wilson, 1980; Hunkin, 1980; St.George, 1978). Several researchers have focussed on classroom behaviour in the junior school (Clay, 1985; Podmore, 1978). However, these studies have not included class size comparisons.

When class size is reduced, the outcomes for pupils are likely to be influenced by aspects of organization and instruction in the classroom and in society. Reducing class size is likely to benefit minority group pupils

only if this practice is accompanied by, at the macro-level, changing value systems and probably promotional practices, and at the micro-level, altering interaction and instructional processes.

Class size and cost effectiveness

There are ongoing debates in the literature about the cost effectiveness of reducing class size (Ellis, 1984; Jamison, 1982; Levin et al., 1984). Levin and colleagues have used meta-analysis to compare the cost effectiveness of four different educational interventions: peer and adult tutoring, computer-assisted instruction, reductions in class size (from 30 to 25, 25 to 20, and 35 to 20), and increases in instructional time. Their research showed that peer and adult tutoring was the most cost-effective change. Class size reduction and increasing the length of the school day were least cost effective, with computer-assisted instruction falling in the middle of these options.

Levin et al.'s study could be used in arguments against reducing class size. Closer scrutiny of their findings shows, though, that the outcomes were measured in terms of the children's mathematics and reading scores alone. There was no analysis of the affective benefits for children or teachers. Further, the researchers calculated the cost of class size reduction with an extensive allowance for classroom facilities - including new classrooms, physical space, furnishings, energy needs, insurance and ongoing maintenance. However, in view of Levin et al.'s findings, class size reductions might be more cost effective if combined with systematic instructional changes, like increasing peer tutoring, and enhancing the content and distribution of teacher-child interactions so that all children receive more attention from the teacher.

The unique characteristics of small classes

Finally, some recent studies have been designed to investigate the characteristics and dynamics of small classes. As Berger (1982) and the authors of the ERS Staff Report (1985) have noted, the concept of 'small class size' constantly changes. ERS (1985) have described class sizes of 23 to 24 as the break point at which many teachers regard large classes as a problem.

Some experimental studies of small classes now tend to focus on classes of 10 to 15 pupils (Bain et al., 1986; Indiana State Department of Public Instruction, 1983; Klein, 1985).

In a study still in progress in Nashville, Tennessee, Bain et al. have studied the effects of a 1:15 teacher-pupil ratio on first-grade children's behaviour, attendance, self-concepts, and achievement in reading and mathematics. Children in seven 1:15 classes were compared with those in control group classes. Two control groups were included. One group comprised classes from a comparable neighbourhood school where class size was described as normal (25 children). The other was a blind control group of first-grade students from 25 elementary schools, and these children were matched with the experimental group on sex, race, socio-economic status, age, and pre-reading scores on entry to school. Preliminary results reported during the first year of the study showed that the experimental group (1:15) children were performing significantly higher than the control group children on reading and mathematics, as assessed on the California Achievement Tests. However, no major differences were found between groups on self-concept, scored on the Piers-Harris Children's Self-Concept Scale. The teachers completed a 24-item Inventory of Classroom Conditions, and there was a strong trend for the experimental group (1:15) teachers to score higher on items concerned with instruction and attention to individual students. The authors noted with interest that the small class condition benefited higher and lower SES Children equally in terms of reading and mathematics achievement. They concluded that the remaining research task was to determine the source of the improved pupil outcomes in the 1:15 condition, and to specify how small class size improves teaching and learning opportunities.

Certainly, further research is needed 'to identify the major variables that are activated by significantly reducing class size' (Bain et al., 1986, p.20). Although the definition of 'small class size' is changing, in the future in-depth studies of small classes may offer useful findings on classroom processes in the junior school.

Summary

This review of some of the more recent research on class size in the first years of school has highlighted the complex nature of the relationship between class size and learning outcomes. Reference has also been made to the complex interaction of school size and of group size within classrooms. Links between small class size and children's achievement are confounded by variations in classrooms, pupil characteristics, teacher variables, and instructional processes.

The reduction of class size to less than 20 tends to be associated in an indirect way with young children's learning and achievement. In addition, there seems to be a positive relationship between small class size and young children's on-task behaviour in the classroom. Recent research also suggests that class size is one of many variables relevant to primary school teachers' reported satisfaction or emotional well-being.

Class size and group size effects tend to be mediated by a number of factors including teachers' perceptions and interactions and the practice of peer tutoring. As the connections between class size reductions and pupil benefits are not direct or automatic, more research information is needed about related classroom practices.

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